

*HIDING IN PLAIN SIGHT:
THE ROLE OF MULTINATIONAL ELECTRONICS CORPORATIONS IN
ENVIRONMENTAL AND HUMAN HARM*

by

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Hiding in Plain Sight: The Role of Multinational Electronics Corporations in
Environmental and Human Harm

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Abstract

Apple Inc. is perceived as a remarkably socially and environmentally responsible multinational electronics corporation. Yet, Apple's business practices, such as subcontracting a significant portion of its manufacturing processes to foreign funded enterprises in China, have been found to be seriously and persistently detrimental to humans and the environment. The purpose of this thesis is thus to analyze *how* Apple successfully portrays itself as a socially and environmentally conscious firm even as its business practices allow, normalize, and exacerbate the electronics crisis. Using Downey and Strife's (2010) Inequality, Democracy and the Environment model, and O'Connor's (1998) ecological Marxist interpretation of the 'two contradictions of capitalism,' I will argue that Apple actively manipulates organizational, institutional and network based mechanisms to accumulate capital and shift attention away from its role in human and environmental harm, thus maintaining an "especially socially responsible" image even as it degrades social and environmental wellbeing.

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CHAPTER 1

INTRODUCTION

In 2012, Mintel, a leading global market reach firm, asked 2,000 respondents (aged 18+), unaided “Can you think of any specific companies or brands that stand out as being especially socially responsible/irresponsible” (Mintel 2012a)? The Internet based survey found that Apple Inc.¹ was overwhelmingly thought of as “especially socially responsible” (Mintel 2012a). The same year, *The New York Times* found similar results in a national online survey: only two percent of respondents cited Apple’s foreign labor practices as problematic, while 14 percent criticized Apple for its expensive products, and 56 percent thought extremely highly of the company, finding Apple without fault in its corporate practices (Duhigg & Barboza 2012). According to almost any definition of corporate social responsibility (CSR), there are five commonly invoked dimensions: societal, environmental, economic, stakeholder, and voluntariness (Dahlsrud 2006). For example, Business for Social Responsibility (2000) defines CSR as “business decision making linked to ethical values, compliance with legal requirements and respect for people, communities and the environment” (Dahlsrud 2006: 7). The Commission of the European Communities (2001), on the other hand, defines CSR as a “concept whereby companies decide voluntarily to contribute to a better society and a cleaner environment”

¹ To situate this thesis, I would like to note that I identify as a ‘Mac’ person, partly because my father is a Mac person, so I grew up around them and find them easier to use than PCs, but also because I give my MacBook a significant amount of my time.

(Dahlsrud 2006: 7). Regardless of the order of CSR dimensions invoked or prioritized, perceptions of CSR include “doing good” for both humans and the environment. Yet, the reality of Apple’s corporate practices is incredibly socially and environmentally destructive. Not only has Apple continued to work with overseas suppliers that are consistently found to degrade the environment and abuse workers rights, but the company also perpetuates the electronic crisis (e-crisis), described briefly in the next paragraphs and in depth in chapter 2, by encouraging solutions that exacerbate the problem. The question is how does Apple ‘hide in plain sight,’ playing a leading role in human and environmental harm under the effective guise of an environmentally and socially conscious image?

Apple is not alone in perpetuating the e-crisis. Whether in the production, manufacturing or disposal phase, electronic products (e-products), including televisions, computers, cellphones, and other electronics, can have a detrimental impact on humans and the environment. To begin, the production of electronics requires a significant amount of virgin minerals, such as gold, silver, copper, tin, tantalum, and tungsten, for which the electronics industry spends more than \$45 billion a year for use in e-products (Boone & Ganeshan 2012). Yet, only 15-20% of precious metals are recovered through recycling in both formal and informal markets, representing severe material depletion given the quantity of e-products sold annually (Boone & Ganeshan 2012). Material depletion is not the only cost. Many of these minerals, such as tin, tantalum, tungsten, and gold are called “conflict minerals” because the global sales from these minerals fund warlords, for example, in the Democratic Republic of the Congo where a violent civil war

has been raging for 13-years (Spectrum 2011).² Moving to the manufacturing phase, the majority of e-products are produced in the developing world, where human rights and the environment are oppressed and abused in order to maintain a steady supply of cheap labor to attract the business of multinational electronics corporations. Lastly, the crisis is not abating, but escalating because it is often cheaper within the current economic system to dispose of e-products, and their hazardous components, than it is to repair or recycle them responsibly, that is with the appropriate safety equipment and health protections.

The United Nations Environmental Programme (UNEP) estimates that roughly 40 million metric tons of electronic waste (e-waste), discarded e-products, is produced globally each year, and notes that this is likely an underestimate (2009). E-waste is also increasing by 5-10% annually, a greater rate than any other form of waste (Boone & Ganeshan 2012; Sthiannopkao 2012). And, 50-80% of the e-waste collected for recycling in the ‘developed’ world is sent to informal recycling markets in China, India, Pakistan, Vietnam, and the Philippines, among many other developing countries, where it is commonly shredded, burned, and dismantled in “backyard” enterprises (UNEP and Basel Convention 2005). Rapidly developing countries increasingly handle not only the e-waste of the developed world³ but also the e-waste of internal consumers. Currently, an estimated 70% of e-waste handled in India is foreign (Sthiannopkao 2012), but by 2020, the UNEP estimates, that from 2007 levels domestic computer e-waste will increase five-fold, cell phone e-waste 18 fold, and television e-waste two fold (Boone & Ganeshan

² Documenting the human and environmental costs of mining the precious metals and minerals necessary to producing e-products in detail is outside the scope of this thesis. Even though mining materials, crucial to the function of e-products, in war-torn countries represents significant and violent harm to humans and the environment. The mechanisms operating at this stage of an e-product’s life cycle deserve unique and sizable attention in future works.

³ Roughly 12 million tons of e-waste is produced by the United States and European Union annually (Robinson 2009).

2012). The majority of this e-waste will flow into the informal sector because there are only three facilities designed to formally recycle and dispose of e-waste in India (Sthiannopkao 2012).

The recycling of e-waste in the informal market is problematic for human health and the environment because e-products contain, in addition to precious metals and plastics, many toxins, including cadmium, lead, mercury, brominated flame-retardants (BFRs), and polyvinyl chloride (PVC) (Sepúlveda et al. 2010). The International Agency for Research on Cancer classifies many of these toxins as known human carcinogens. Moreover, research has demonstrated that the recycling practices commonly used in the informal sector magnify health risks. For example, primary and secondary exposure to toxic metals, such as lead, results mainly from open-air burning activities used to retrieve valuable components such as gold (Sepúlveda et al. 2010). Combustion from burning e-waste components creates fine particulate matter, which, when breathed at high concentrations, is strongly linked to pulmonary and cardiovascular disease (Sepúlveda et al. 2010). In sum, emissions from informal recycling practices are severely damaging human health and the environment (Leung et al. 2008, Robinson 2009).

Indeed, the majority of the e-waste management and recycling literature examines the severe health and environmental impacts of the e-waste trade (Frazzoli 2010; Fu et al. 2008; Leung 2006, 2008; Robinson 2009; Sepúlveda et al. 2010; Wong et al. 2007; Zhao 2009), the mechanisms perpetuating the e-crisis (Boone & Ganeshan 2012; Choksi 2001; Clapp 1994; Cusack 1990; Hackett 1990; Kahhat et al. 2008; LaDou & Lovegrove 2006; Lepawsky 2012; Lipman 2002; O'Reilly & Cuzze 1997; Skinner et al. 2010; Sonak et al. 2008; Sthiannopkao 2012; Widmer et al. 2005), and the state of e-waste recycling

(Bouvier & Wagner 2011; Bratt 1999; see especially Saphores et al. 2006, 2009, 2012). However, the process of legitimization, in which the e-crisis is essentially ‘normalized’ or made routine through business operations, is rarely addressed, nor is the role of specific multinational electronics corporations in the legitimization process investigated. Thus, the question driving this thesis seeks to fill this gap by analyzing how Apple rationalizes the environmental and nonenvironmental costs of its ‘doing business,’ helps normalize unsustainable consumption, and stalls pushing for significant or non-routine change within its supply chain or disposal processes. This question also begins to fill a void in the emerging business-environment research (Bansal & Roth 2000; Berrone & Gomez-Mejia 2009; Delmas et al. 2007; Meek et al. 2010) by moving beyond a largely empirical and economic focus to incorporate political and societal dimensions into an environment-business analysis.

I will use Downey and Strife’s (2010) Inequality, Democracy, and the Environment (IDE) model to frame how Apple effectively maintains an “especially socially responsible” image despite its significant role in the degradation of the environment and human health. The IDE model posits that multi-scalar environmental crises are largely the result of organizational, institutional and network-based (OINB) inequality. The IDE model (1) examines how economic, political, military and ideological elite⁴ use organizational networks and undemocratic institutions as mechanisms to attain their goals, primarily capital accumulation, and (2) connects these mechanisms to local, regional, and global environmental crises. The IDE model thus highlights the macro-structural relationship between humans and the environment

⁴ Elites are defined as “those individuals who are positioned most advantageously in their society’s (or the world’s) four most important power networks: economic power networks, political power networks, military power networks, and ideological power networks” (Downey & Strife 2010: 159).

(Downey & Strife 2010). The model also provides a specific framework for linking OINB inequality to environmental degradation through a set of predictions. For example, OINB inequality permits a limited number of individuals and organizations to “(a) monopolize decision-making power; (b) shift environmental and nonenvironmental costs onto others; (c) shape individuals’ knowledge, attitudes, values, beliefs, and behavior; and (d) frame what is and is not considered to be good for the environment” (Downey & Strife 2010: 155). Examining the negative environmental and social outcomes of elite-controlled OINB mechanisms sheds light on how capitalist societies make capital accumulation possible (Downey & Strife 2010).

I will complement the IDE model with the ecological Marxist perspective of O’Connor (1998) by specifically incorporating ‘the two contradictions of capitalism’ into parts of my analysis. Capitalism is roughly defined here as an economic and political system that allows private, rather than state, ownership and control of commerce and production for capital accumulation. This system is dependent upon expansion because growth is profitable, not “maintenance,” or said better in Marx’s words, capitalism has to “accumulate or die” (O’Connor 1998: 240). The two contradictions of capitalism are subsequently based upon Marxist theory that “capital is its own worst enemy” (O’Connor 1998: 240). The first contradiction of capitalism

states that when individual capitals attempt to defend or restore profits by increasing labor productivity, speeding up work, cutting wages, and turning to other time-honored ways of getting more production from fewer workers, meanwhile paying them less, the unintended effect is to reduce the final demand for consumer commodities (O’Connor 1998: 240).

The first contradiction of capitalism is, however, only slowly realized within the e-crisis context because the ‘developed’ world outsources e-product manufacturing and e-waste disposal to ‘developing’ countries with cheaper labor and lower health and environmental

standards. Demand for e-products is thus buoyed by the fact that the majority of workers creating and disposing of e-products are not the ones consuming e-products. Capital consequently appears “sustainable” (O’Connor 1998). This practice artificially creates the guise of a functioning system, when in reality e-product profitability is only kept aloft by the exploitation of others and the environment. The second contradiction of capitalism

states that when individual capitals lower costs—for example, when they externalize costs on to conditions of production (nature, laborpower, or the urban)—with the aim of defending or restoring profits, the unintended effect is to raise costs on other capitals (and, at the limit, capital as a whole), thereby lowering produced profits (O’Connor 1998: 176-7).

The second contradiction of capital is most often peripherally dealt with through the CSR efforts of multinational electronics corporations, such as recycling programs and annual audits of overseas suppliers. Yet, these efforts only routinely scratch the surface or stall further change. The distancing of environmental and nonenvironmental costs of e-product production and disposal enables multinational electronics corporations to maintain a “sustainable” capital visage. For example, Apple offshores the majority of their manufacturing process to China and subcontracts disposal processes to recyclers who further subcontract, and the majority of e-waste collected for recycling ends up in the developing world (UNEP 2005). Consequently, the majority of Apple consumers do not experience the social, material or environmental costs of e-product production or disposal, so again capital appears “sustainable” (O’Connor 1998).

Arrangement of thesis

The thesis is broken down into three chapters of content, which draw on Downey and Strife’s (2010) IDE model, its framework of predictions, and O’Connor’s (1998) two

contradictions of capitalism to demonstrate how Apple sustains its socially responsible images while perpetuating, normalizing, and exacerbating the e-crisis.

The second chapter follows the introduction by describing the e-crisis in greater detail, including the disposal and manufacturing of e-products. The purpose of the second chapter is to detail the environmental and nonenvironmental costs of the e-crisis that result from the elite-control of OINB mechanisms to accumulate capital. The chapter specifically argues that the commodity chain and free trade mechanisms intertwined with the two contradictions of capitalism, and utilized by Apple and multinational electronics corporations for maximizing capital accumulation allow the shifting of environmental and human harms to occur.

The third chapter demonstrates how Apple in particular monopolizes, shapes, restricts, and frames consumer decision-making to maximize profits, while at the same time distracting consumers from the environmental and nonenvironmental costs of their products with CSR inspired “sustainable consumption” narratives. By shaping and limiting individuals’ knowledge, attitudes, values, beliefs, and behavior towards ‘i-Products,’ Apple enrolls people into a system where the human and environmental costs are not only distanced but also obscured. The consumer’s perception of Apple as a responsible and sustainable firm thus remains intact, and is further made credible because of the slow realization of the two contradictions of capitalism.

The fourth chapter then examines how Apple specifically diverts individual attention from the environmental and nonenvironmental costs of its products by framing, shaping, and prioritizing certain solutions to the e-crisis, such as eco-labels and recycling under its CSR activities. The chapter argues that eco-labels and recycling ‘blackbox’ the

manufacturing and disposal phases of its products, and thus their social and environmental harms. The chapter also argues that Apple frames its environmental CSR claims technically to exclude other social and environmental problems tied to Apple's business practices. Lastly, the chapter argues that the recycling solution promoted by Apple worsens the e-crisis because of its artificial understanding of the problem, and is further questionable because of the company's primary motivation to create space and need among its customer base for new products.

The fifth chapter concludes the thesis with a summation of the OINB mechanisms used by Apple, and multinational electronics corporations in general, to both maximize profit and ensure future earnings, which perpetuate, normalize, and worsen the e-crisis all under the guise of CSR activities and "sustainable consumption" narratives. Finally, I will underscore how Apple's 'do good' image is further enabled through stalling the realization of the two contradictions of capitalism by distancing the environmental and nonenvironmental costs of e-product production and disposal.

In sum, the arrangement of the thesis sets up the problem by describing the e-crisis and linking it to the capital accumulation goals of elite electronics corporations through the use of OINB mechanisms (chapter 2), and then expands upon the types of overlapping OINB mechanisms utilized by elite electronics corporations to accumulate capital, and distance and distract from their role in the e-crisis (chapter 3 and 4). All of the chapters build upon one another to answer the puzzle motivating this thesis, that is how does Apple hide in plain sight, harming humans and the environment, while successfully projecting remarkable social responsibility.

CHAPTER 2

GUIYU ASH AND FOXCONN ALIENATION

This chapter begins by examining the human and environmental costs of the disposal and manufacturing of e-products. These environmental and nonenvironmental costs of the e-crisis serve as a backdrop for the rest of the thesis by showing the physical and social outcomes that result from the elite-control of OINB mechanisms to accumulate capital. The two contradictions of capitalism further help to explain how the distancing of environmental and nonenvironmental costs to developing countries buoys demand in developed countries, thereby making the capital accumulation activities of elite-corporations appear “sustainable.” Broadly, this chapter seeks to shed light on the macro-structural relationship between humans and the environment within the e-crisis context according to the IDE model. Specifically, this chapter analyzes how the commodity chain and free trade mechanisms, routinely used by multinational electronics corporations, such as Apple, to accumulate capital allow the shifting of environmental and human harms to occur.

The disposal of e-waste

Ash is raining down on Guiyu’s e-waste market in southeastern China. Portable household fans blow the acrid air of toxic solder fumes in ineffectual attempts to reduce

throat and eye irritation (Leung et al. 2008). “Breathing ailments, skin infections, and stomach diseases” are rampant and leukemia cases are escalating (Leung et al. 2006: 31). The growth of many children is stunted, and marked with learning disabilities and behavioral issues, while their mothers increasingly experience miscarriages (Frazzoli et al. 2010; Leung et al. 2006; Robinson 2009).

Guiyu is the largest e-waste recycling site in the world, yet, the scene described above plays out across the developing and rapidly developing world (Robinson 2009). According to the UNEP, the majority of e-waste ‘recycled’ in the developed world lands up in dumps and informal recycling sites across Asia and Africa, and primarily in China and India (2005). These recycling centers largely consist of poor and illiterate migrants, mostly women and children who pull apart an array of high-tech e-waste with archaic tools to the detriment of their health, their children’s health, and their environment (Mahesh 2011). The risks of the informal e-waste market are often chosen over poverty because each informal recycler can earn between \$2-5 for a ten-hour workday (Mahesh 2011). These earnings place many informal recyclers monetarily ahead of millions of others in their countries living on less than a dollar a day.⁵ Thus, high demand and relatively higher wages partly explain why informal recyclers engage in e-waste work despite stigmatization and serious health concerns. Moreover, most informal recyclers are not even aware of the long term health risks, which include, among many others, a high incidence of cancer, damaged neurobehavioral development, and a higher risk of heart disease and stroke (Frazzoli et al. 2010; Leung 2006).

⁵ A 2005 World Bank report estimated that 42% of the Indian population (of over one billion people) lives below the international poverty line of US\$ 1.25 a day (World Bank 2010).

The environmental pollution from informal recycling is also severe and far-reaching. Air, water, and soil quality are greatly degraded both by the toxic emissions and leaching stemming from common informal recycling practices (Robinson 2009). For example, the toxic particles released by open air burning are dispersed by wind patterns across croplands and river systems in southeast China, also known as the Pearl River Delta region (Robinson 2009). Through air dispersal, these hazardous and non-biodegradable particles enter soil and water systems, where the pollutants bioaccumulate (collect) and biomagnify (multiply) in plants, including agricultural crops, animals and humans (Fu 2008; Robinson 2009). One-time exposure to a pollutant is not necessarily harmful to an organism, but the detrimental effects increase rapidly with limited but continual exposure to pollutants, such as toxic heavy metals, over longer periods of time (Fu 2008).

Toxic emissions from the open-air burning of e-waste also contribute to climate change. For example, the open air burning of a cell phone with an LCD panel releases nitrogen trifluoride, also called the “missing greenhouse gas” (Prather & Hsu 2008: 1). Nitrogen trifluoride is a chemical used in the LCD panels of computer monitors, mobile phones, and semiconductors, and is estimated to remain in the atmosphere for 550 years (Prather & Hsu 2008: 1). The “missing greenhouse gas” has a global warming potential (GWP) of 12,300 for a 20-year time horizon and 17,200 for a 100-year time horizon (Prather & Hsu 2008). In short, the GWP of nitrogen trifluoride is significant because of its extremely long atmospheric residence (Prather & Hsu 2008).

The question consequently driving this chapter is what OINB mechanisms have allowed the shifting of these environmental and nonenvironmental costs of the developed

world onto informal e-waste recyclers in the developing world? To begin to answer this question, I will first examine the electronics commodity chain at the production stage. Like the disposal of e-waste, the creation of e-products is fraught with environmental and non-environmental costs.

The manufacturing of e-waste

Apple represents the pinnacle of the elite-controlled electronics industry as the most successful electronics company within the U.S. (Chen & Wingfield 2013). Part of Apple's record-breaking profits is due to the firm's active manipulation of the global supply chain, which has enabled Apple to capture the greatest capital from its products. For example, "by leading in product innovation and design, but without doing any manufacturing, Apple pocketed \$80 in gross profit for each 30GB iPod sold at \$299" (Sako 2011: 24). Apple's strategic management of its electronics supply chain has increased its capital accumulation opportunities for a couple of reasons. First, according to the two contradictions of capitalism, Apple is able to maintain profitable demand within its primary market because the company uses its supply chain to offshore all low-wage functions, such as final assembly manufacturing, to developing countries. This specifically means that the workers experiencing the costs of production, detailed later in this chapter, are largely unable to consume Apple products, but this fact does not impair Apple's capital accumulation activities because Apple markets to middle and upper-middle class consumers. The environmental and nonenvironmental costs of manufacturing and disposal of e-products also do not impair Apple's capital accumulation activities because these costs are geographically separated from their

headquarters and primary consumers. The company strategically maintains all high-wage functions near its corporate headquarters in Cupertino, CA, including product design, software development, product management, and marketing (Linden et al. 2011). Monetarily this means, “in the case of the iPod...that Apple pays more wages to the United States than went to its entire offshore supply chain” (Linden et al. 2011: 7). Apple’s active manipulation of its global commodity chain has therefore helped make it into one of the most profitable and respected companies in the world. Fortune Magazine’s annual survey of business people ranked Apple as the world’s most admired company in 2012, a title it has held since 2007 (Fortune 2012).

Controlling and economically benefitting from the global electronics commodity chain, however, is fraught with social and environmental problems that arise from demanding the highest quality products at the absolute lowest possible price. Due to increasing international attention to supply chain issues, Apple released a supplier list in January 2012. The list was the first ever to name 200 of Apple’s top suppliers. According to Apple, the list accounts for “97 percent of procurement expenditures for materials, manufacturing, and assembly of our products worldwide” (Apple 2013). Among the 200 suppliers listed there are 334 factories in China, 149 in Japan, 83 in the United States of America, 39 in Taiwan, 38 in South Korea, 38 in the European Union, 29 in Singapore, 28 in Malaysia, 23 in the Philippines, 19 in Thailand, 11 in Vietnam, 6 in Mexico, 5 in Indonesia and Israel, and 1 each in Malta and Brazil.

Thus, a significant portion of Apple’s supply chain exists in China, a country well known for cheap labor, long working hours, poor occupational safety and health standards, a lack of social security and few, if any, avenues for unionized recourse (Chan

1998, 2001, 2010, 2011; Chen 2006, 2008; Cheng et al. 2012; Cooke 2008; Lee 2003, 2007; Zhou 2013). Anita Chan, a scholar on Chinese trade union and labor rights issues, states that as a researcher in Asian countries such as China, Indonesia, and Vietnam “it becomes obvious that legal minimum wages are the lowest possible prices these governments have set to sell their workers’ labor in the international market while [theoretically] maintaining their workers’ physical survival” (Chan 1998: 887). Other authors, such as Joseph Cheng, King-lun Ngok, and Yan Huang (2011), point out that China’s cheap labor supply has been crucial to its success in the international economic market, a key component in the country’s incredible economic growth, and a consequence of “a distinct political orientation to please capital and suppress labor so as to attract foreign capital and increase exports” (Cheng et al. 2012: 380). Indeed, since China welcomed economic globalization in the 1970s, the country has experienced tremendous economic growth. Economic growth fueled largely by the activities of multinational corporations has also led to increases in social welfare, a rise in living standards for hundreds of millions of Chinese, and greater employment opportunities (Cheng et al. 2012). At the same time, however, there have been dramatic increases in economic and social inequality, severe environmental degradation, a vast and growing gap between the rich and poor, and significant human and labor rights issues (Chan 2001; Chan & Siu 2010; Ngai & Chan 2012; Zhou 2013).

China’s economic strategy to encourage foreign investment and increase exports plays out politically in labor disputes because local governments are legally allowed to display “open support for investors” (Cheng et al. 2012: 380). This obviously creates a conflict of interest, in which the Chinese government offers preferential policies to

foreign-funded enterprises (FfEs), thus prioritizing state revenue over workers' rights (Ngai & Chan 2012). Multinational corporations, such as Apple, are never directly linked to labor rights violations, but they do actively take advantage of the supply chain mechanism by outsourcing low-wage work to FfEs in China, which are regularly found guilty of human and labor rights abuses. FfEs are rarely regulated, monitored or evaluated by the Chinese government, yet recruit millions of workers, and set wage standards across the country (Cheng et al. 2012). FfEs intensely compete for Western brand-name contracts by offering the lowest possible price for supply orders.

“The only way you make money working for Apple is figuring out how to do things more efficiently or cheaper,” said an executive at one company that helped bring the iPad to market. “And then they’ll come back the next year, and force a 10 percent price cut” (as cited in Duhigg and Barboza 2012: 9).

A routine technique to decrease production costs, or make things cheaper, is to recruit and take advantage of poor Chinese migrants (Chan & Siu 2010). In global labor standards, this is known as the “race to the bottom” (Chan & Siu 2010). For example, many scholars have found that FfEs work around the legally required minimum wage⁶ through a variety of strategies, including: not paying workers extra for overtime labor, delaying payment, manipulating piece rates and time rates, handing out fines for being late to work, for sick days, for conversations, for loitering, for unclean work or living spaces, and for not turning out lights (Chan 1998; Chan & Siu 2010; Cheng et al. 2012; Ngai & Chan 2012; Zhou 2013). These fines are in addition to what workers must pay for temporary residential permits, recruitment fees, and contract ‘deposits’ out of their already extremely low wages (Chan 1998).

Moreover, FfEs in China are well known for their coercive and poor treatment of

⁶ The monthly minimum wage for a 40-hour week in the Guangdong region, which is home to many electronics FfEs is between Y850 to Y1300, roughly 136USD to 209USD (China Briefing 2013).

female workers. “A high proportion of the victims happen to be young female workers” (Cheng et al. 2012: 383). Many suppliers perceive young women as especially productive because they believe that “young female workers have nimble hands, are more obedient and easier to manage and are faster and more meticulous” (Chan & Siu 2010: 172). Though females are especially targeted, all Chinese migrant workers must face an array of inequalities and abuses on a daily basis, starting with their very status as migrant workers. Under China’s household registration system (*hukou*), rural-to-urban migrants must follow many discriminatory “immigration” rules:

They are not entitled to any of the benefits enjoyed by the local residents such as social welfare, schooling, and employment for their children. In addition, they do not have any rights to own property, to bring their spouse or children with them, or even any right to residency. They are also socially discriminated against by the local residents in the region in which they are employed (Chan 1998: 889).

In addition, migrants are required to carry their temporary residential permit with them at all times. If not in hand, police can put migrants in detention centers and deport them back to their village (Chan 1998). Student workers are also commonly recruited for internships at factories to supplement migrant workers (Ngai & Chan 2012; Su 2011). Student labor is especially problematic because “under China’s Education Law, students who carry out internships organized by their schools maintain a student identity at all times. Student interns do not receive the protection of the Labor Law since their relationship with the work organization is not defined as employment” (Ngai & Chan 2012: 391).

Hon Hai Precision Industry Company, also known as Foxconn, is the world’s largest electronics manufacturer (supplying Samsung Electronics, Hewlett-Packard, Sony, Apple, Microsoft, Dell, and Nokia), and is representative of the inequalities and abuses experienced by many Chinese workers as described above. For example, from 2009 to

2010, 18 migrant workers attempted suicide at Foxconn facilities in China. 14 died, 4 lived, and “all were between 17 and 25 years old” (Ngai & Chan 2012: 384). This tragic event led to multiple competing international headlines: “Suicides at Foxconn: Light and Death” (The Economist 2010); “Labor Unrest in China Reflects Changing Demographics, More Awareness of Rights” (Richburg, The Washington Post 2010); “Scandal-Hit Foxconn Sets Sights Inland” (Yuefeng et al., China Daily 2010); “China’s Continuing Labor Problems” (Lubman, The Wall Street Journal 2010); “Foxconn Removes Safety Nets, Holds Rallies After Suicide Spree” (Culpan, Bloomberg 2010); “Guo Taiming Responded to Foxconn Suicides Claiming That Foxconn Can Never Be a Sweatshop” (ChinaNews 2010). Newspaper investigations were instantaneously followed by numerous corporate, and academic investigations.⁷ For example, Steve Jobs along with Foxconn spokespeople argued that Foxconn could not be considered a sweatshop because only 14 young people actually committed suicide at their factories, a rate under the Chinese average (ChinaNews, 2010 as cited in Ngai & Chan 2012). Academic pieces, on the other hand, such as Su (2011) and Ngai and Chan (2012), found the opposite:

On the [Foxconn] factory floor, work stress associated with the “scientific” production mode and inhumane management is intense. Alienation of labor and the lack of social support are common experiences. Young migrant workers in their late teens to mid-20s, who have been placed in the “first-class” Foxconn factory-cum-dormitory environment, have experienced severe loneliness, anxiety, and alienation. Suicide is merely the extreme manifestation of the migrant work experience for hundreds of millions (Ngai & Chan 2012: 405).

The Foxconn suicide tragedies covered by the media were preceded by articles about poor working conditions as early as 2006 when *The Mail on Sunday*, a British newspaper, snuck into Foxconn factories in Longhua, and Suzhou, finding 100 people

⁷ It is also important to note here that these international media reports of plant explosions, worker suicides, leukemia cases, and children sitting in e-waste piles have done absolutely nothing to deter sales of e-products in either the developed or developing world. In fact, both Apple and Samsung achieved record-breaking sales in 2010 and 2012 when working conditions, tragedies, and human rights abuses were the most widely reported in the international media.

dorm rooms, 15 hour workdays, and militaristic conditioning of the workers, including push ups in the morning for male employees (*MailOnline* 2006). The 2006 British report was followed by another prominent article in *The New York Times* in 2012, which highlighted repeated factory explosions and worker poisonings. For example, in early 2010, workers went on strike at Wintek, a Chinese manufacturing subcontractor for Apple because, among other problems, 137 of the company's workers had been exposed to, and injured by n-hexane, which can cause paralysis and nerve damage (Duhigg & Barboza 2012). N-hexane was being used to clean the screens of iPhones because it is more efficient than rubbing alcohol, evaporating three times faster, thus speeding up iPhones cleaned per minute (Duhigg & Barboza 2012). Apple's 2011 supplier responsibility report stated that Apple was verifying that workers were being properly treated, and had ordered that n-hexane not be used when cleaning iPhone screens. *New York Times* reporters, however, interviewed injured workers *after* the release of the Apple supplier responsibility report, and found "that Wintek had pressured them [injured workers] to resign and take cash settlements that would absolve the company of liability" (Duhigg & Barboza 2012: 9). After these findings were published in *The New York Times*, Wintek promised to pay more to workers injured by n-hexane, and Apple sent a representative to contact those injured (Duhigg & Barboza 2012). Apple, thus, only reacted to prominent media pressure to verify that injured workers were fairly compensated, and treated, even though they falsely claimed proactive behavior in their responsibility report.

The very next year, in May 2011, a Foxconn plant in Chengdu exploded because of aluminum dust produced from polishing iPads (Duhigg & Barboza 2012). The iPad 2

was unveiled in March 2011, and workers were expected to polish thousands of cases a day to keep up with demand. The air ducts over each station, however, could not keep up and four Foxconn workers died, and another 18 suffered significant injuries (Duhigg & Barboza 2012). Families who had lost loved ones were compensated with \$150,000, those injured were given medical care, and both Apple and Foxconn vowed to improve ventilation, and brought together occupational safety experts to improve safety within the plants (Duhigg & Barboza 2012; Apple 2012). Just seven months later, however, another Foxconn iPad factory in Shanghai exploded. This time putting 23 workers in the hospital out of 59 injured by the blast, and, again, combustible aluminum dust⁸ was involved (Apple 2012). Indeed,

“You can set all the rules you want, but they’re meaningless if you don’t give suppliers enough profit to treat workers well,” said one former Apple executive with firsthand knowledge of the supplier responsibility group. “If you squeeze margins, you’re forcing them to cut safety” (as cited in Duhigg & Barboza 2012: 9).

Apple is not the only multinational electronics company caught up in the social and environmental costs of a globalized supply chain,⁹ but it is often targeted because it is the leading U.S. electronics corporation, and because of its socially responsible reputation.

Nevertheless, in response to social and environmental issues Apple, among other corporations, has created a strict ‘Supplier Code of Conduct.’ The Apple Code stipulates fair and safe working conditions, supplier audits to ensure those standards are met, and contract termination if such standards are not met. Indeed, Apple’s CSR claim indicates that it is the all-powerful and ethical leader of its supply chain:

⁸ According to Nicholas Ashford, an occupational safety expert at MIT, aluminum dust is extremely easy to control with proper ventilation (Duhigg & Barboza 2012).

⁹ Samsung suppliers have also come under criticism when in 2010 manufacturing processes in factories were linked to cancer, and specifically leukemia in workers (CBC News, 2010; Chun-hwa, n.d.; Hankyoreh, n.d.; Si-soo, 2010; You-chul, 2010).

We don't allow suppliers to act unethically or in ways that threaten the rights of workers — even when local laws and customs permit such practices. We're working to end excessive work hours, prohibit unethical hiring policies, and prevent the hiring of underage workers. We don't let anyone cut corners on safety. We constantly seek out ideas — from our own employees and from outside experts — to make production processes safer, and we apply them to our entire supply chain. We're also working with suppliers to improve worker well being in factories and beyond. We take great care to design environmentally sound products. And we work with suppliers to make sure they're using environmentally responsible manufacturing processes wherever those products are made (Apple 2013a, emphasis added).

It has certainly been argued by economists, industry representatives and researchers that multinational corporations improve labor conditions by pressuring contractors to protect worker's rights and improve worker well being (Cheng et al. 2012). Yet, these arguments are problematic for a number of reasons. To start, corporations strategically source their manufacturing and component suppliers from countries that attract capital by suppressing wages, and, thus, labor rights in the first place. Second, Apple has outsourced low-value jobs to more suppliers in China than in any other country for a reason, and that reason is that China provides the largest supply of cheap and relatively stable labor of any country in the world.¹⁰ Apple can thus maximize profits and capture the highest value from its products. Third, Apple was not ignorant of the poor working conditions and unethical laws (i.e. China's household registration system) in China before it started working there—it was business-savvy. Its very choice to work with suppliers in China indicates its tolerance of a system that explicitly threatens the rights of workers.

Some former Apple executives say there is an unresolved tension within the company: executives want to improve conditions within factories, but that dedication falters when it conflicts with crucial supplier relationships or the fast delivery of new products...sales [could be] higher, executives said, if overseas factories had been able to produce more (Duhigg and Barboza 2012: 2-3).

Moreover, as the head of a global value chain, Apple largely dominates the decisions of its suppliers, including decisions regarding the speed of production (Linden et al. 2011: 6).

¹⁰ Again, on Apple's Supplier List there are 334 factories listed in China, 149 in Japan, 83 in the USA, 39 in Taiwan, 38 in South Korea, 38 in the EU, 29 in Singapore, 28 in Malaysia, 23 in the Philippines, 19 in Thailand, 11 in Vietnam, 6 in Mexico, 5 in Indonesia and Israel, and 1 in Malta and Brazil (Apple 2013).

Consequently, the intensity of production,¹¹ the excessive working hours, and the unethical recruitment and treatment of workers to meet demand are the results of manipulating the supply chain to achieve the highest quality with the lowest price.

“We’ve known about labor abuses in some factories for four years, and they’re still going on,” said one former Apple executive who, like others, spoke on the condition of anonymity because of confidentiality agreements. “Why? Because the system works for us. Suppliers would change everything tomorrow if Apple told them they didn’t have another choice. If half of iPhones were malfunctioning, do you think Apple would let it go on for four years?” the executive asked (as cited in Duhigg and Barboza 2012: 3).

The main point is that FFEs in China are pushed to offer the lowest price in order to win orders from multinational corporations, and offering the lowest price necessitates ‘cutting corners’ because that is the system that best serves the firms dominating the industry, such as Apple.

Apple appears to be addressing transparency and working conditions within its supply chain by posting supplier responsibility reports of its audits online, such as reports on the 2010 n-hexane poisonings, and the two aluminum dust explosions in 2012. However, the *persistence* and repetition of such poor working conditions over time, in addition to the company’s reactive stance all suggest stalling tactics to accumulate as much capital as possible in spite of human and environmental harms, but under the guise of responsibility. For example, Apple hired The Fair Labor Association (FLA) in 2012 as an independent party to audit Foxconn, and indeed FLA found serious, and immediate noncompliance issues, such as safety and health violations, and even Chinese labor law violations, but, again, this information is not new. Apple was already well aware of such issues from conducting its own yearly audits. So why did the company conduct yet

¹¹ In a 24-hour day, the biggest factory in Longhua can produce 137,000 iPhones—that translates into more than 90 iPhones a minute (Ngai & Chan 2012). In order to reach the maximum quota possible, stop-watches and computerized industrial engineering devices are used by the factory managers to test the capacity of workers—the quota is increased daily until the workers are no longer able to meet the set target (Ngai & Chan 2012).

another audit instead of pushing for real change within its supply chain? The FLA audit was great for Apple's image, and it gave Apple more time to evaluate issues that is has known about for years, indeed a low-cost stalling technique to actual change. Instigating active change within its supply chain, on the other hand, would be a costly and time-consuming process: impeding rapid innovation, making customers wait longer for the latest version of an 'iProduct,' and, most importantly, immediately reducing profits and the speed of Apple's capital accumulation. And, though Apple claims that it terminates contracts with suppliers in violation of its supplier code of conduct, "fewer than 15 suppliers have been terminated for transgressions since 2007, according to former Apple executives" despite hundreds of violations found in audits (Duhigg & Barboza: 7).

"If you see the same pattern of problems, year after year, that means the company's ignoring the issue rather than solving it," said one former Apple executive with firsthand knowledge of the supplier responsibility group. "Noncompliance is tolerated, as long as the suppliers promise to try harder next time. If we meant business, core violations would disappear" (as cited in Duhigg & Barboza: 6).

Indeed, to hold true to its supplier code of conduct, Apple should have terminated its contract with Foxconn long ago, but Foxconn's scale is unique among manufacturers, and, worldwide, it is one of the only companies able to produce enough iPads and iPhones to keep up with demand (Duhigg & Barboza).

To conclude, Apple's Supplier Code of Conduct is a superficial CSR claim. The Apple Code currently serves to stall and divert attention from real change within its supply chain, such as addressing the environmental and nonenvironmental costs of production, while still lending the company a "responsible" image. In reality, Apple is behind more "responsible" firms, such as Hewlett Packard (HP), which is for example the only electronics firm to actually restrict the number of Chinese students working in its factories, even though this policy limits the company's ability to meet demand during

peak seasons (Bradsher & Barboza 2013). Though the use of any student labor is still problematic, HP is the only multinational electronics company attempting to transition away from such practices, and willing to sacrifice flexibility in the production process. Apple, meanwhile, takes greater advantage of its supply chain, a key mechanism for capital accumulation, which requires unethical utilization of a system that oppresses and threatens worker's rights. Again, Apple's capital accumulation activities appear "sustainable" according to the two contradictions of capitalism because, to a large extent, the individuals experiencing and suffering from the environmental and nonenvironmental costs of production are not Apple customers. In sum, Apple's active manipulation of their supply chain to maximize capital accumulation has allowed the shifting of significant nonenvironmental and environmental costs to occur.

The political economy of the e-waste trade

Apple's use of the supply chain mechanism initially allows the shifting of environmental and nonenvironmental costs at the production stage, but what elite-controlled OINB mechanism allows the shifting of human and environmental harms (highlighted through the Guiyu case at the start of the chapter) to occur at the disposal stage?

The transfer of e-waste across borders is economically motivated and enabled by the free trade mechanism because both exporters in mostly developed countries and importers (not the informal recyclers) in mostly developing countries can make significant profits by trading in e-waste (Clapp 1994). The exact profits made, and amounts of e-waste moved between developed and developing countries are, however,

difficult to specify because the trade itself is cloaked in secrecy and intertwined with organized crime, given its illegal status in most waters, including the European Union and China (Choksi 2001; Robinson 2009). For example, exporters will use ‘flags of convenience,’ such as switching a developed nation’s flag for that of a developing nation at sea because the trade of toxic waste, such as e-waste, is still allowed between developing nations (Sonak et al. 2008). Exporters will also disguise e-waste by mixing it with other non-hazardous products, and even mislabeling it as aid or humanitarian assistance, otherwise known as ‘sham-recycling’ (Hackett 1990; Clapp 1994; O’Reilly & Cuzze, 1997). Thus, the lucrative trade of e-waste between developed states and poorer nations is made possible because exporters have both economic incentives, and many tricks with which to disguise the illegal trade, whereas developing countries experience significant corruption, only a limited few benefit from the import of toxic waste, and possess very few resources with which to monitor and enforce existing laws or bans (Cusack 1990; Clapp 1994; Sonak et al. 2008).

The international community has attempted to curb the trade of e-waste between developed and developing countries through the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, however the majority of e-waste from developed countries still ends up in developing nations (Wong et al. 2007; Luther 2008). This is partly because the U.S. remains the only industrialized state not to ratify the Convention. This means that the largest exporter of e-waste, the U.S., legally allows the export of hazardous waste to developing countries. The existing economic incentives, therefore, not only enable, but also encourage the recyclers working for U.S. multinational electronics corporations, such as Apple, to regard the disposal of e-

waste in developing countries as viable business decisions as a result of free trade because U.S. constitutional interpretations define waste as a commodity (Lake & Johns 1990; O'Reilly & Cuzze 1997; Lipman, 2002). For example, incentives include lower disposal costs, and fewer health and environmental regulations in developing countries (Clapp 1994).

The costs of e-waste disposal for recyclers and refurbishes are higher in the U.S. because of more stringent government requirements under the Resource Conservation and Recovery Act (RCRA), which strictly regulates hazardous waste storage, transportation and disposal (Luther 2008). Moreover, U.S. recyclers commonly charge a recycling fee because the cost of recovering or disposing of hazardous materials is often more than the profits made from recycling or reusing such materials (Luther 2008). Higher recycling costs in concert with the economic advantages and ease of shipping e-waste overseas has led to a lack of e-waste recycling infrastructure within the U.S. (Luther 2008). For example,

There are few facilities in the United States capable of processing CRT glass. There are also limited opportunities in the United States for copper and precious metal recovery from circuit boards or for processing flame retardant-containing plastic. Further, most consumer electronics manufacturers (who provide the market for materials recovered from recycled electronics) have manufacturing operations overseas. For example, almost all glass manufacturers that may reuse CRT glass are located overseas (Luther 2008: 11).

The weak U.S. e-waste recycling infrastructure and higher costs consequently encourage recycling businesses to offshore costly and labor-intensive recycling processes to countries with a large supply of cheap labor, and fewer environmental and safety regulations. Offshoring the environmental and nonenvironmental costs of e-products further highlights the second contradiction of capitalism because these practices stall the broad realization of unsustainable capital accumulation since those experiencing the harms of disposal are to a large extent not those consuming or profiting from e-products,

such as smartphones, tablets and laptops.

The combination of economic, legal, and practical incentives with developing state vulnerabilities consequently propels the subcontractors of U.S. corporations to continue transferring e-waste across borders. Shipping U.S. e-waste overseas provides U.S. recyclers working for multinational companies with a competitive advantage, a “sustainable” market appearance, and thus, greater capital accumulation opportunities (EPAOEJ 2003). Thus, elite utilization of the free trade mechanism enables firms to maximize capital accumulation opportunities, and as a result allows the offshoring of the environmental and nonenvironmental costs of e-waste disposal.

In sum, chapter two begins to show how Apple actively works through OINB mechanisms to further capital accumulation opportunities by specifically manipulating their supply chain, and, more theoretically, the market failures of free trade. Consequently, these OINB mechanisms allow the shifting of environmental and nonenvironmental costs to occur in the process. The shifting of these costs further stalls the realization of the two contradictions of capitalism and gives Apple’s capital accumulation activities the impression of “sustainable” capital. Lastly, and more broadly, one can think of the supply chain and the market failures of free trade as the arms and legs of the neoliberal capital accumulation model. These appendages under elite control can activate the inequities of the given global economic hierarchy in very physical ways, including the severe health and environmental realities experienced by workers at both the beginning and end of an e-product’s lifecycle.

CHAPTER 3

“THE GOOD LIFE”

The elite-controlled manipulation of the supply chain and free trade mechanisms that allow the shifting of social and environmental harms to occur are not the only mechanisms on the block. Apple also utilizes institutional and ideological mechanisms to accumulate capital, and obscure and disconnect the consumer from the environmental and nonenvironmental costs resulting from their business practices. To maximize profits, Apple specifically works through a critical ecosystem or network built around its products to control, monopolize, restrict, and shape how consumers use their devices and make decisions relating to their products. This ecosystem enrolls consumers in unsustainable consumption, while providing a sense of normalcy and inevitability. At the same time, Apple ties the idea of “sustainable consumption” into the ecosystem surrounding its products through advertising and marketing to further influence how individuals identify with their iProducts. The “sustainable consumption” claim is problematic because it shifts responsibility to the consumer for improving the e-crisis by, for example, buying ‘greener’ products. Moreover, this ideological mechanism diverts attention from Apple’s role in both normalizing unsustainable consumption (via network carrier partnerships and contracts), and stalling the active improvement of the social and environmental degradation allowed by their capital driven business practices. These

“sustainability” claims, and more broadly Apple’s especially responsible image are made further credible by the slow realization of the two contradictions of capitalism because the environmental and nonenvironmental costs of production and disposal are both distanced from the Apple consumer, and felt mostly by non-Apple consumers.

A critical ecosystem

The core technologies needed to produce e-products are readily accessible to a wide-range of competitors (Linden et al. 2009). Yet, Apple is one of the most successful smartphone and tablet makers worldwide, second only to Samsung (Chen & Wingfield 2013). For example, in the last three months of 2012, Apple sold a record-breaking 47.8 million iPhones and 22.9 million iPads worldwide, earning \$54.5 billion in revenue (Apple 2013e). So, how has Apple achieved such incredible success? Apple has surpassed competitors through a number of strategies, including design innovation, marketing, raising barriers to competition, and, perhaps most importantly, by “building an ecosystem” for its products (Linden et al. 2009: 143). Customers do not just buy an Apple product—they buy into an Apple network, that is, a range of intertwined Apple products and services that are linked to the consumer. For example, every Apple product comes with a convenient and easy to use iTunes application. So not only does a customer buy an Apple device, but they are also funneled into buying all of their music and other media through the Apple iTunes Music Store. As of February 6, 2013, the iTunes Music Store had sold more than 25 billion songs, making it “the world’s most popular online music, TV and movie store” (Apple 2013c). Obviously, the Apple ecosystem is thriving.

Another important piece of the Apple ecosystem is called Fair Play. Fair Play is a

digital rights management system used by the iTunes Music Store to *prevent any downloaded media from being played on other devices* because Apple does not allow rivals to license the system (Linden et al. 2009). Apple's strategic use of Fair Play monopolizes how Apple customers use their iTunes purchased media because they can only play it on Apple devices, or accessories designed to play Apple devices. This system clearly prevents Apple customers from the use of competitors' products and media services. Conversely, customers who purchase an iPhone or iPad can access services, such as iWork, iPhoto, FaceTime, iMessage and Siri as well as the "first-class versions of competitors' official apps [applications]," such as Google Maps, Gmail, Google Search, Google Drive, Microsoft's OneNote and Bing search service, or a variety of Amazon applications, including access to its online store (Mossberg 2013). However, individuals who purchase non-Apple devices cannot access Apple services or mobile applications (iPhoto, Siri etc.). Apple makes both software and hardware, which enables its exclusivity unlike Google, Microsoft and Amazon, which are mostly software companies. Apple's competitors are unwilling to create similar barriers because the Apple device market is too substantial to dismiss (Mossberg 2013).

Apple thus makes its products exclusive through two different strategies: (1) it is the only company whose products have access to all the applications, and (2) it is the only company that prevents its media, such as music from the iTunes Store, from being played on any of its competitors' devices. Through different types of exclusivity, Apple thus creates a critical infrastructure around its products to monopolize how one uses its devices after purchase so as to secure continuous capital accumulation. Apple's ability to continuously profit from capital accumulation is however first enabled by manipulating

the supply chain and free trade mechanisms to produce affordable products for their primary market, and capture the most value from their products. The profits made from these products appear sustainable because of the slow realization of the two contradictions of capitalism. That is, the manipulation of OINB mechanisms and consequent offshoring of the majority of production and disposal processes allows the shifting of environmental and nonenvironmental costs to occur separately from Apple's primary market, middle to upper-middle class consumers.

Apple not only uses exclusivity to secure continuous capital accumulation, but it also mimics many multinational electronics corporations by using economic incentives to secure a receptive customer base through contracts with carriers, such as Verizon and AT&T. Carrier contracts further tie into Apple's critical infrastructure specifically through its smartphones and tablets by influencing consumer purchases through two-year deals. For example, an individual can buy a 16GB iPhone 5 for \$199 by signing a two-year contract for a minimum of \$80.00 a month with Verizon, AT&T, or Sprint (Apple 2013d). Or one can buy the 16GB iPhone 5 unlocked and contract free for \$649.00 (Apple 2013d). Carriers must obviously pay Apple a significant subsidy to sell their phones at such a reduced price to secure contract deals (Savitz 2012). The carriers are willing to pay substantial subsidies to Apple for its smartphones and tablets because it guarantees contracts with customers for at least a two-year period. This system also gives producers, such as Apple, a platform for selling new products, the consumption of which is significantly encouraged by providing *free* upgrades at the end of two-year contracts. Consumers are, thus, greatly encouraged through economic incentives to enroll in a contract, which systematizes and streamlines *disposing of perfectly functional e-products*,

the opposite of “sustainable consumption.” This process becomes routine or normalized because customers have no incentive to repair or reuse smartphones or tablets because it costs absolutely nothing to obtain a new device, while fixing or upgrading e-products can be very expensive. This system not only primes consumerism, but it makes it unquestionable. The actually very expensive devices are, in reality, severely devalued because within the US producer-carrier-contract-system they are transformed into cheap and easily replaceable products. Given these types of incentives, it is no wonder that e-waste is emerging as the fastest growing waste stream worldwide (Boone & Ganeshan 2012).

In sum, multinational corporations, such as Apple, in concert with major carriers, such as Verizon, create and control critical ecosystems around e-products, systematizing continuous and substantial capital accumulation, and normalizing unsustainable consumption in the process. This ecosystem allows Apple to monopolize, restrict and shape how consumers use their products over time to maximize profits. Again, these profits are first enabled through elite manipulation of the supply chain and free trade mechanisms, and only appear “sustainable” because they allow the shifting of environmental and nonenvironmental costs to occur faraway from the majority of consumers purchasing the products.

The false freedom of consumerism

Just as consumers are greatly encouraged by producers and carriers to replace *functional* mobile devices every two years through free upgrades, they are engulfed with a variety of “sustainable consumption” platitudes from advertising and marketing

campaigns. Indeed, advertising and marketing strategies seem to reveal a multitude of choices to the consumer to ‘choose better,’ but the reality of those choices are constricted by the structure of the neoliberal economy, and more specifically the interests of the electronics industry. Consumers may feel good about purchasing “environmentally-friendly” products, or products with “green” elements, such as less packaging waste, but it is certainly misleading to believe that those purchases can “save the world” (Rutherford 2011). Yet, this very narrative, espoused in catchy bumper stickers to “Think globally, act locally,” is even promoted by the United Nations Environmental Program (UNEP). In 2003, the UNEP initiated a “Shopping for a better world” campaign aimed at the global retail industry, in which “consumers are given hope that their private actions will have larger effects beyond their domestic realm” by leading “cool” and “green” lifestyles (Rumpala 2011: 696). The narrative of “sustainable consumption,” employed by the UNEP shopping campaign arguably picked up steam in 2006 when the documentary *An Inconvenient Truth* was released starring former Vice President Al Gore. The now iconic film not only changed how Americans perceive global climate change, but it also presented a frame on how to solve the environmental crisis vis-à-vis the cumulative impact of individual actions. At the end of the PowerPoint presentation, a list of solutions runs across the screen:

Purchasing energy efficient appliances and light bulbs, lowering your thermostat; weatherizing your house, recycling; buying a hybrid car; walking; riding a bike, or using public transportation when possible; switching to renewable energy sources and convincing your power company to do the same, voting for politicians who support climate legislation, as well as lobbying congress and potentially running for a seat; planting trees; writing letters to the editor or calling radio shows; praying for change, if you believe in prayer; learning about climate change, and acting on this knowledge; and, of course, encouraging others to see *An Inconvenient Truth*” (Rutherford 2011:164)

According to Al Gore, who is also on Apple’s Board of Directors, consumption of “better” products represents one of the solutions to climate change. This narrative infuses

the advertising schemes of multinational corporations, as seen in the 2008 Apple commercial telling consumers that purchasing an Apple MacBook is so energy “efficient, it runs on a quarter of the power of a single light bulb”! I am not saying that individual actions are meaningless. Nor am I saying that using more energy efficient products is unhelpful. But I am saying, in concert with Rutherford (2011), Rumpala (2011), and many others, that this dominant narrative shifts the burden and responsibility of solving the e-crisis to the individual, which is problematic.

Beyond barriers to information in purchasing decisions (Rumpala 2011), assumptions of rationality and awareness translating into action (Robbins 2007), and issues of multi-billion dollar advertising manipulation (Brulle & Young 2007), this narrative shuts down alternative causes or solutions (Rutherford 2011). It specifically leaves out the role of industry in allowing environmental and human harms to occur, and redirects attention away from business practices that are detrimental. For example, the need to be critical of the fact that Apple’s manufacturing and disposal practices contribute to *many* environmental crises falls away if individuals increasingly focus on their consumption as the source of and solution to the problem. Importantly, overconsumption is not stressed as problematic, but rather the type of consumption is singled out and problematized (Rumpala 2011). Thus, consumers are increasingly exposed to advertisement campaigns that play on an implicit sense of guilt for inappropriate consumption, and are explicitly redirected towards “better” consumption (Rumpala 2011).

In sum, the structural limitations placed on consumer choice within the neoliberal economic structure are compounded by narratives of “sustainable consumption,” which

restrict the types of solutions perpetuated by emphasizing the role of the individual, while diverting attention from the harms of corporate practices. The frame that better consumption will not only lead to the social but also physical “good life” is only furthered by the CSR environmental claims of multinational electronics corporations, which is the topic of the next chapter.

Advertising and marketing or wooing the citizen-customer

The idea of “sustainable consumption,” however questionable, limited and problematic gains traction within our society because as Mary Douglas states, “human needs and wants are generated, articulated, and satisfied in an institutionalized feedback system. They do not appear from thin air” (Douglas et al. 1998: 259). This is not to say that humans are without agency, but rather that the field of “human needs and wants” are socially and economically situated, contextualized, and constrained within the parameters of the neoliberal economy. Brulle and Young (2007) articulated the need to examine the social aspects missing from the economic analysis of consumption patterns in the first article to ever empirically test the relationship between advertising and consumption. Brulle and Young (2007) quantitatively established that consumption is not just an economic activity, but that it is also an “outcome of the socialization of individuals due to their immersion in a consumer culture” (527).

Immersion within the American consumer culture is intense, starting with exposure to advertisements through multi-media. To begin, the average American watches four hours and 39 minutes of television a day (Stelter 2012). In addition to television, the average consumer spends two hours and 35 minutes online, 50 minutes on

mobile devices, and 50 minutes on newspapers and magazines every day (Phillips 2010). Time spent online is also higher for affluent Americans. According to a 2011 Ipsos's survey over 98% of affluent Americans use the Internet, spending on average 30 hours online per week, roughly four hours per day (Kraus & Shullman 2011). This number increases to 40 hours online per week for those aged 18 to 29, about six hours per day (Kraus & Shullman 2011). Affluent Americans are thus not only more likely to be able to afford electronic products, such as the iPhone 5, which, heavily subsidized, costs between \$199 and \$399 (to say nothing of the cost of a monthly carrier contract), but they are also exposed to more online advertising.

Interestingly, Brulle and Young (2007) not only found that increased spending on advertising significantly increased individual consumption levels, but also that increased advertising has a significant impact on the consumption of luxury goods (under which smartphones and computers fall for instance). Dertouzos and Garber (2006) have also found that increases in advertising often lead to increases in company profits. Apple for example spent one billion dollars on advertising in 2012, while Samsung spent 12 billion dollars on advertising (Elmer-DeWitt 2012). During this same time period, and though only suggestive, Samsung reported record-breaking profits and overtook Apple to become the world's largest smartphone maker and leader in sales (Kim 2013; Chen & Wingfield 2013).

Advertising strategies have also become increasingly effective over time, as marketing strategies have transitioned from "push" to "pull" representations (Robbins 2007). Historically, producers have relied on "push" marketing in which companies provided big retailers, such as Best Buy, with incentives to sell their products using a

large and well-trained sales staff (Robbins 2007). This marketing technique, however, shifted in the late 1980s when companies started using the “pull” strategy. “Pull” marketing is

Based on direct advertising to the consumer by formulators themselves (via television, radio, and print advertising), a “pull” approach concentrates on creating demand at the customer level. Rather than relying on a retailer to sell a specific brand, the formulator presents its product directly to the consumer using carefully crafted imagery (Robbins 2007: 91).

This carefully crafted imagery is folded into the creation of producer stores, for example Apple’s slick glass boxes, and also enables the producer to collect a greater share of the product’s value through direct sales. In order for the “pull” strategy to be effective, it requires a significant advertising and marketing budget to establish and best speak to the product’s market (Robbins 2007). “Pull” marketing thus often involves evoking emotions, norms, and goals to reach the consumer through values or “desirable” lifestyles (i.e. this product is “good” for the environment) (Robbins 2007; Rumpala 2011). Brulle and Young (2007) describe this type of advertising as “a guide to living life by providing them [consumers] with information regarding what their individual needs are and how certain commodities can satisfy them” (528). In this way, “advertising functions to define reality that does not exist, but one that should be. It provides us with images of the “good life” of a consumer society” (Brulle & Young 2007: 528).

Apple, for example, employed “pull” representations to reach the green consciousness of its middle- and upper-middle class audience in 2008 when it aired a commercial starring its “greenest family of notebooks.” The 30-second commercial matches insouciant guitar and tinkling bell music with a spinning MacBook, opened to a bright and dewy green leaf display, against a white background. Meanwhile a confident male voice narrates the “green” elements of the new MacBook, with the help of more

spinning green symbols. For example, “its advanced aluminum and glass enclosure is completely recyclable” (Apple 2012a). It was also “engineered to be so efficient, it runs on a quarter of the power of a single light bulb. And it’s made without many of the harmful toxins found in other computers like mercury. The new MacBooks, the world’s greenest family of notebooks” (Apple 2012a). The commercial ends with a green drawing of a sun-lit and spinning Earth partly exposed behind the top of the computer screen before it reiterates in words beneath the Apple logo, now green, “the greenest family of notebooks” (Apple 2012a). The message is clear, this product over all others is the best for the environment. Thus resonating with individuals who identify as environmentally aware or friendly. Not only can you feel good while using the computer because it is so energy efficient, but you can also feel good about this purchase when you buy the updated version because this one is “free” of many harmful toxins and large parts of it are recyclable.

The commercial was, however, almost instantly criticized by executives at Dell and by the nongovernmental organization Greenpeace for its “misleading” marketing claim that the MacBook is one of the “world’s greenest family of notebooks” (Charny 2008). Bob Peterson, the environmental director at Dell, wrote in a blog post, “We wish Apple would be more bold in making a difference than making ads” (as cited in Charny 2008: 1). The complaint was taken up by the National Advertising Division of the Council of Better Business Bureaus, which recommended that Apple “avoid the reference to ‘world’s greenest’ — given the potential for overstatement” (Ensha 2009: 1). Indeed, the ‘world’s greenest’ is an overstatement because both the human and environmental realities of Apple’s manufacturing and disposal processes are extremely negative, as

described in chapter two. In addition, even if the consumer is “environmentally-aware,” and seeks to recycle the computer and its “completely recyclable” “advanced aluminum and glass enclosure” there are greater economic, structural and historic factors at play that prevent the majority of e-products from being truly “green.” To begin, the creation of e-products involves environmental degradation and human inequality and harm, so that the firm can most easily capture the highest value from their sale and produce affordable products for their markets (see chapter 2). Second, the majority of e-products within the U.S. are falsely subsidized because the cost of safely recycling the e-product is not incorporated into the price. Third, the lack of e-waste recycling infrastructure in the U.S., costly recycling processes, and non-ratification of the Basel Convention ensures that “the majority of e-waste collected for recycling is processed, at least to some extent, abroad” (Luther 2008: 10). Abroad in this context means that e-products are shipped to the informal markets of developing countries, where the workers’ rights are not recognized, or their health and environment in any way protected from the toxic materials leftover in e-products. In sum, the ability of the consumer *to be* Apple’s “green” is severely limited and manipulated within the current economic system.

Apple’s 2008 “green” commercial was its last “green” commercial. Since then, Apple’s television advertisements tend to present only the “coolness” of its products at first through comparisons to PCs (through the famous cool Mac guy versus dorky PC guy campaign), and then simply by displaying the undoubtedly innovative and impressive features of the products themselves. Now, instead of using TV commercials to present its “green” image, Apple has almost exclusively shifted all its environmental claims to its website, which are analyzed in greater detail in the next chapter.

To conclude, chapter three highlighted how elite-controlled multinational electronics corporations, and specifically Apple works through ideological mechanisms, such as advertising and marketing schemes to increase capital accumulation, and shift responsibility to the consumer for improving the e-crisis through “sustainable consumption” narratives. While, at the same time, the manipulation of ideological mechanisms diverts attention from Apple’s role in creating a critical ecosystem that both systematizes and thus normalizes unsustainable consumption, allowing social and environmental harms to occur in the pursuit of capital. Lastly, Apple’s ecosystem, including its advertising and marketing campaigns, appears more credible and “sustainable” because Apple’s primary market is separated from the environmental and nonenvironmental costs of the production and disposal of iProducts, thus buoying iProduct demand at least for now.

CHAPTER 4

“THE RECYCLING TRAP”

In this chapter, I examine how Apple employs overlapping ideological mechanisms to frame, shape, and prioritize ‘what is good for the environment’ by promoting solutions to the e-crisis that both divert individual attention from the environmental and nonenvironmental costs of its products, and maximize the company’s capital accumulation opportunities. I will specifically argue that Apple’s eco-labels and recycling solutions ‘blackbox’ the manufacturing and disposal processes of Apple products, and thus their social and environmental harms. I will argue that Apple-sponsored solutions are further problematic because the company utilizes technical and scientific justifications to legitimize environmental claims that exclude significant social and environmental problems allowed by their business practices. Lastly, I will argue that Apple’s promotion of recycling on its website, as is, only worsens the e-crisis because it only superficially addresses the historic, structural, legal and economic realities that complicate the recycling of all U.S. e-waste. Apple’s recycling program, in short, primarily ensures capital accumulation and its consumer base, rather than contributing to sustainability goals.

How to “green” capital accumulation?

One click away from Apple's homepage, the company introduces its perspective on the environment in the overview section, titled "Apple and the Environment." Apple begins by framing what is good and not good for the environment by telling "the story" of their environmental footprint: "Apple reports environmental impact comprehensively. We do this by focusing on our products: what happens when we design them, what happens when we make them, and what happens when you take them home and use them" (Apple 2013a). Interestingly, the introduction to the "overview" leaves out what happens when you dispose of their products. This omission begins to make sense as one examines how Apple primarily frames its environmental impact, that is, a calculation of carbon emissions at each stage of the product's lifecycle: manufacturing, transportation, product use, recycling, and facilities. Recycling accounts for only two percent of the company's total greenhouse gas emissions (Apple 2013a). This percentage is insignificant in comparison to manufacturing (61%) and product use (31%) (Apple 2013a). These points are visibly illustrated through green drawings meant to represent each stage of the product's lifecycle, and then connected using plus signs to equal the Apple logo (Apple 2013a). One can "learn more" about each stage of the 'equation' by scrolling down the page or clicking on "learn more" (Apple 2013a).

By framing their environmental footprint as greenhouse gas emissions, Apple defines the environment technically, scientifically, and devoid of humans and the other environmental problems it produces. The human role in producing their 'environmental footprint,' such as how they take advantage of the global supply chain or free trade mechanisms (see chapter two), is not addressed, and humans are only indirectly referenced through 'product use.' For example, how much energy is consumed when

individuals use their products. Yet, even this reference is still framed as a matter of improving energy efficiency, rather than consuming less energy. What is “good” for the environment is specifically measured by reducing carbon emissions through “better” consumption. Apple seeks to reduce carbon emissions through improving the environmental functioning of their products:

We know that the most important thing we can do to reduce our impact on the environment is to improve our products’ environmental performance. That’s why we design them to use less material, ship with smaller packaging, be free of toxic substances, and be as energy efficient and recyclable as possible (Apple 2013a).

In reference to toxic substances, Apple is creatively rewriting history because the company was forced to eliminate lead, brominated flame-retardants (BFRs), and mercury from its products by the EU’s Restrictions on Hazardous Substances (RoHS) Directive if the company wanted to sell its products within the EU (Loewenberg 2005). Improving environmental performance thus was not why Apple designed their products to be free of these toxins, but rather because they were forced to do so in order to enter the significant EU market. Furthermore, Apple’s “recyclable as possible” design claim is questionable for a number of reasons starting with the company withdrawing from the Electronic Product Environmental Assessment Tool (EPEAT) in the summer of 2012 (EPEAT 2012). Third parties contended the Green Electronics Council (GEC), which oversees EPEAT, was not going to give the MacBook Pro with Retina display the EPEAT label because the computer was difficult to upgrade, repair, and recycle—for example the battery was glued to the casing (Arthur 2012). Apple’s decision to leave EPEAT, however, drew a strong backlash from both government agencies and its customers. The City of San Francisco, for example, announced that it would “ban its city officials from buying Apple computers” (Arthur 2012). In response, Apple rejoined EPEAT, and Bob

Mansfield, Apple's Senior Vice President of Hardware Engineering, publically apologized in a letter to customers for the "mistake" on its "Environment" webpage (Apple 2013a).¹²

Much further down the "Environment" webpage, after much text, Apple adds on "responsible manufacturing" and "responsible recycling" subsections as caveats in the "learn more" sections (Apple 2013a). The "responsible manufacturing" section speaks to their "commitment" to ensuring fair and safe conditions for workers, while the "responsible recycling" section promises compliance with health and safety laws (Apple 2013a). What is omitted is that (1) Chinese labor conditions and laws where the majority of their products are manufactured are inherently unfair, and often unsafe, (see chapter 2 for a full description), and (2) that US health and safety laws, such as RCRA, legally allow the shipment of toxic materials, such as e-waste, to developing countries. Apple does interestingly state, "Nothing is shipped overseas for recycling or disposal" (Apple 2013a). Yet, this statement stands in direct opposition to the estimates of the UNEP¹³, the US Congressional Research Service, the United States General Accounting Office and countless academic studies (see Luther 2008; Robinson 2009; Sepúlveda et al. 2010; Skinner et al. 2010; Sonak et al. 2008; Sthiannopkao 2012; UNEP 2005; USGAO 2008; Wong et al. 2007).

¹² Greenpeace and iFixit, an online repair community and parts retailer, have since voiced concerns that the EPEAT standard has been weakened through Apple's dominant role in EPEAT's stakeholder process (Cheeseman 2012). EPEAT's Director of Outreach and Communications, Sarah O'Brien responded that the stakeholder "process will never produce a flawless or "best" standard, but it has produced the most effective standard—the best at changing the marketplace and improving the environmental performance of an industry, as EPEAT has done over the past six years" (2012).

¹³ According to the UNEP, "About 50—80% of the e-waste collected for recycling in industrialized countries end up in recycling centers in China, India, Pakistan, Vietnam and the Philippines" (as cited in Wong et al. 2007: 131).

Nonetheless, the “responsible manufacturing” and “responsible recycling” subsections are peripheral to Apple’s “environmental impact” equation at the top of the “Environment” page. Not only are labor conditions ignored, but also the health impacts of the toxins on the humans manufacturing the products are not added to the equation, or the health impacts of the recycling or disposal of the products calculated. In addition, there is no drawing of a human next to the factory or recycling symbols because according to their frame of the environment human costs are not a part of their environmental impact. What is “bad” for the environment can only be calculated by counting up carbon emissions, and what is “good” for the environment can only be measured by a reduction in carbon emissions. The link to the human dimension of global climate change is never discussed. Emissions are simply linked to energy efficiency, rather than the uneven, unjust and negative consequences of global climate change resulting primarily from first-world consumption, otherwise known as luxury emissions (Shue 1993).

The ‘blackbox’ of eco-labels and recycling

As described above, Apple explicitly and primarily frames what is good and bad for the environment in terms of science, specifically as a matter of calculating greenhouse gas emissions through equations. The scientific frame of the environment thus influences the type of solutions presented to consumers. Reducing carbon emissions, for example, consists of better design, measured in part by meeting, and co-creating eco-label standards, including ENERGY STAR (ES) and EPEAT, and increasing recycling. That is, engineers, the builders of science so to say, are working to improve the energy

efficiency and recyclability of products, including reducing toxins and packaging, and, consumers can help by recycling their unwanted products back into the system for reuse. This frame is made authoritative and defensible through the ‘hard’ numbers listing metric tons of greenhouse gas emissions on Apple’s “Environment” webpage (Apple 2013a). For example, by reducing metric tons of carbon emissions, Apple can demonstrate real progress. This environmental frame of numbers circulates well because it reduces its environmental impact to a simple equation. This problem thus becomes “do-able” (Fujimura 1987). According to this frame, all we have to do is recycle more, and keep working on the science to replace the harmful toxins so that we can consume better. The human and environmental costs of manufacturing and disposal (described in chapter two) are considered separate. They are not apart of Apple’s scientific equation or definition of the environment. Framing the environment scientifically through numbers thus leaves out the human messiness of why we should consume less because the technical definition protects and perpetuates the very idea of consumption (Law 1999).

The authority and appeal of “sustainable consumption” is especially well demonstrated by Apple’s use of eco-labels: ES and EPEAT. ES is “is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices” (ES 2013). The point of the ES label is to (1) reduce greenhouse gases and (2) help consumers distinguish energy efficient products from less-efficient products (ES 2013). EPEAT (discussed above) is a U.S rating system that “helps [consumers] identify greener computers and other electronic equipment” (EPEAT 2013). EPEAT set limits for and measures electricity, primary materials, air emissions, water emissions, solid waste,

and hazardous waste resulting from the design, usage or disposal of a product (EPEAT 2013a). Again, both the metrics and reductions of ES and EPEAT are quantifiable. Demonstrating progress can be communicated through equivalents that are easy to understand. The EPEAT system, for example, eliminated 9,738 metric tons of toxic materials from 533,055,933 e-products between 2006 and 2011, the equivalent in weight to 1,704 elephants (EPEAT 2013a). How does one question the equivalent of 1,704 elephants in hazardous waste reductions? The numbers convey a type of “truth” because numbers cannot be wrong, only miscalculated.

The ES and EPEAT labels consequently ‘blackbox’ or shut out other ways of measuring Apple’s environmental impact because the labels erase other environmental and nonenvironmental problems, such as the social and environmental ‘messiness’ of e-product manufacturing and disposal processes (see chapter 2 for details). The numbers also mask the political economy processes inherent in the lifecycle of e-products and support the idea of “sustainable consumption” because not only are numbers kept separate from social issues, but they can also demonstrate “better” consumption through measurements. Thus, the need to question consumption becomes less urgent. Indeed, our very consumption of Apple’s energy efficient products is legitimate according to their definition because such products theoretically reduce greenhouse gas emissions. This logic, however, runs against Jevons’ paradox, that is, increasing the efficiency of resources through technological progress tends to increase the consumption of that resource, rather than decrease consumption of that resource (Cafaro 2012). Therefore, energy efficiency gains are offset by subsequent increases in consumption. Apple’s environmental frame is thus not only socially but also technically problematic.

Lastly, the eco-labels reinforce the idea of individual responsibility for solving the environmental crisis. For example, eco-labels are meant to help consumers make better, and more sustainable purchases. Yet, eco-labels also play on a customer's environmental conscious, they push the consumer to question their purchases, to essentially buy 'better' products (Rumpala 2011). This system thus implicitly shifts responsibility to the consumer to be more sustainable, and diverts attention from the role of the company in sustainability issues. Again, according to this frame, it is up to the consumer to decide better, or pay more for a 'greener' product, so that we can then reduce our collective environmental footprint, and "make a difference." The idea of individual responsibility is further examined in the next section through recycling as the other prominent solution put forth by Apple to solve the problem of better, but not less consumption.

To recycle or not to recycle

Recycling presents an extraordinarily apt example of self-regulation, and, thus, embodies Michel Foucault's conceptualization of governmentality because recycling is a technique that guides human behavior at an individual level. Across the world, and on a daily basis, humans sort a variety of wastes into different colored containers seemingly autonomously. This process can be understood through Foucault's (1980) analysis of power because recycling demonstrates how power can move "through progressively finer channels, gaining access to individuals themselves, to their bodies, their gestures and all their daily actions" (151-52). In governing the management of their own waste, individuals articulate the dominant narrative on what is considered good for the environment. And, in some cases recycling is good for the environment. The recycling of

e-waste, however, is more complex because many of the components are both hazardous and extremely valuable. Together, these characteristics have pushed e-waste onto the global stage and into the neoliberal market with serious consequences for human health and the environment (see chapter two).

Unlike the municipal waste infrastructure, the e-waste recycling infrastructure within the U.S. is extremely limited (Luther 2008: 13). The weak US e-waste recycling infrastructure is largely the result of very costly and stringent environmental and health regulations in the U.S., and the extremely low cost of e-waste recycling in the informal markets of ‘developing’ countries. This severely slanted coupling consequently encourages U.S. businesses within our globalized neoliberal structure to ‘recycle’ toxic waste in the developing world to increase profit margins (Skinner et al. 2010). U.S. non-ratification of the Basel Convention also legally permits any U.S. corporate entity to ship e-waste overseas, thus further encouraging such practices despite the knowledge that the majority of this hazardous waste stream ends up in informal markets of developing countries. Recycling e-waste in informal markets is extremely problematic because recyclers are not provided with the necessary safety equipment to protect themselves against the toxic emissions that arise when taking apart e-products to retrieve valuable components (see chapter two for more health-related details). Recycling e-waste without health and environmental standards consequently places marginalized populations at greater risk because these practices severely degrade their health and their surrounding environment in both the short and long-term. Thus, the perceived benefits of recycling are seriously complicated by the environmental and social reality of the current e-waste trade between developed and developing countries. Multinational corporations, such as

Apple, however, are targeting recycling as one of the solutions for “sustainable” e-waste consumption. Yet, this narrative defies the current reality of e-waste recycling. Increasing e-waste recycling within the U.S. implies increasing the amount of toxic materials exported to developing countries (Skinner et al. 2010). Without concurrent efforts to ensure safe and fair working conditions in the informal markets of developing countries, the blind CSR promotion of e-waste recycling activities exacerbates the serious health and environmental crises resulting from informal recycling practices.

In sum, the corporate framing of e-waste recycling as “good” for the environment is thus severely flawed because it both ignores the historic, economic, legal and social reality of the current e-waste trade and distracts from other manipulative economic motivations. For example, “recycling” rhetoric and (selective) practices can be used to facilitate new waves of planned obsolescence under the banner of environmental friendliness—thus legitimating consumerism and maintaining profitability” (O’Connor 1998: 238). Apple, for instance, provides a free recycling program for its customers, and, if any of the recycled components are reusable, the company will compensate the customer *in the form of store credit*. This strategy not only plays on the power of recycling as a perceived environmental “good,” but it also ensures further consumption of Apple products.

Ultimately, a number of strategies will be necessary to manage the e-waste issue, including recycling and eco-labels. However, multinational corporations, such as Apple, are currently using technical CSR claims on online environment webpages, as ideological mechanisms that exclude social issues, worsen the e-crisis, and feed problematic ideas of

“sustainable” consumption, but conveniently secure capital accumulation now and in the future, as well as a stable and continuous customer base.

CHAPTER 5

CONCLUSION

Just like its e-products, Apple is savvy. Apple makes record-breaking profits because it actively manipulates multiple OINB mechanisms to accumulate substantial and continuous capital. Apple's utilization of OINB mechanisms to accumulate capital allows the shifting of environmental and nonenvironmental costs to occur in both the manufacturing and disposal of its products, yet the company maintains an "especially socially responsible" image. The purpose of this thesis has thus been to analyze *how* Apple successfully portrays itself as a socially and environmentally conscious firm even as its business practices allow, normalize, and worsen human and environmental harms. This question was derived from a gap in the e-waste literature, that is, a lack of analysis on the process of legitimization, in which the e-crisis is made routine or less questionable through business operations, and the role of specific multinational electronics corporations in the legitimization process.

To this end, I employed Downey and Strife's (2010) IDE model as a framework, and its set of predictions, to deconstruct the linkages between OINB inequality and the e-crisis. I also complemented the IDE model with O'Connor's (1998) interpretation of the two contradictions of capitalism. The IDE model was used throughout to connect the environmental and nonenvironmental costs of the e-crisis to Apple's strategic use of

OINB mechanisms to accumulate capital. And, O'Connor's perspective was used to further underscore how a firm's capital accumulation activities can appear "sustainable" when the costs of production are offshored through the supply chain or free trade mechanisms to falsely buoy demand, or in other words to stall or slow the realization of the two contradictions of capitalism.

To begin answering 'how Apple hides in plain sight', I started chapter two by highlighting the environmental and nonenvironmental costs of the e-crisis in both the disposal and manufacturing stages through secondary evidence collected from academic, media, nongovernmental, and corporate sources. First investigating the actual human and environmental harms of the e-crisis serves as a backdrop to all of the OINB mechanisms that follow because these costs are allowed through elite-control of the commodity chain, free trade, and ideological mechanisms to accumulate capital. The supply chain mechanism best demonstrates the direct link between environmental and nonenvironmental costs and capital accumulation because it sheds light on how Apple continually works through FFEs, particularly in China, to secure the most value from their products despite serious, well-documented, and persistent issues within its supply chain: such as poor working conditions, student labor, excessive working hours, worker alienation, inadequate compensation, in addition to health, safety, and Chinese labor law violations in over half of its factories (Apple 2011, 2012; Duhigg & Barboza 2012; FLA 2012; Ngai & Chan 2012; Su 2011).

The elite-control of the free trade mechanism to accumulate capital, through Apple's recycling subcontractors, is harder to document because of the illicit nature of the majority of disposal activities in developing countries. However, there is enough

academic literature, in addition to the international recognition of the problem in the form of the Basel Convention, to argue that a link indeed exists between the environmental and nonenvironmental costs of recycling e-waste in the informal recycling markets of developing countries and the economic and legal incentives of multinational corporations seeking to maximize capital accumulation (Choksi 2001; Clapp 1994; Cusack 1990; Hackett 1990; Lake & Johns 1990; Lipman 2002; Luther 2008; O'Reilly & Cuzze 1997; Robinson 2009; Sonak et al. 2008; Wong et al. 2007). Lastly, the two contradictions of capitalism demonstrate that it is the very distancing of environmental and nonenvironmental costs that currently lend Apple's capital accumulation activities the appearance of "sustainable" capital because those experiencing the costs are to a significant extent not those purchasing the products. This separation, thus, artificially buoys demand as the real costs are obscured in faraway places.

Chapter three and four build on 'how Apple hides in plain sight' by introducing the elite-controlled ideological and institutional mechanisms sustaining Apple's environmentally and socially conscious image in spite of its role in social and environmental harms. Chapter three starts by demonstrating how Apple has built a critical ecosystem around its products to monopolize how consumers use their products, and ensure continuous capital accumulation. This includes Apple's manipulation of institutional mechanisms, such as the producer-network-carrier contract to systematize, and make routine the disposal of perfectly functional e-products at the end of two-year contracts, rather than using the products to the end of their lifecycle. America's now normal and distinctly unsustainable routine is greatly encouraged by offering consumers free new devices at the end of their two-year contracts. Apple thus gets to sell new

products to its customer base, and carriers, such as AT&T, secure a steady profit from consumer contracts.

At the same time as Apple systematizes unsustainable consumption it pushes “sustainable consumption” narratives mostly online in advertising and marketing campaigns to appeal to its customer base. The firm thus uses ideological mechanisms to prime the consumer with ideas of individual responsibility, which feeds the dominant claim that better consumption is a salve for environmental problems. Meanwhile, “sustainable consumption” claims divert attention from Apple’s role in allowing significant environmental and human harms to occur as it prioritizes capital accumulation activities. There is nothing ‘wrong’ with better consumption in and of itself, but this type of solution becomes problematic when corporations manipulate its strong appeal through, for instance, eco-labels to make their own role in the e-crisis less questionable.

In promoting “sustainable consumption,” Apple not only diverts attention from its own business practices by shifting responsibility onto the consumer, but it also uses this frame of what is good for the environment to perpetuate solutions that are, in fact, detrimental to the environment and humans, such as current U.S. e-waste recycling. E-waste recycling does, however, currently secure Apple continuous business, and lends the guise of “social responsibility” because it draws on a deeply rooted belief in the benefits of recycling. Apple passes responsibility to their recycler, who then passes responsibility onto a multitude of subcontractors because of the weak domestic e-waste recycling infrastructure. The unknown subcontractors then do not have to voice platitudes of responsibility to customers, and often profitably ship the e-waste legally overseas to informal markets.

To conclude, though a business inflicting social and environmental harm is not a new story, how they accumulate capital through a multitude of mechanisms, such as commodity chains and ideological CSR claims, is worthy of study because it helps to explain the current ‘diversionary reframing’ of the business-society relationship (Freundenburg & Alario 2007). The story of the e-crisis provides a lens into larger questions of political economy research by illuminating how firms can manipulate OINB mechanisms to legitimize capital accumulation activities, and make those activities appear “sustainable” as they slow the realization of the two contradictions of capitalism. It is in this vein that Apple ‘hides in plain sight’ because it operates successfully under the guise of its projected image as a socially and environmentally conscious firm as it simultaneously degrades and stalls improving the well being of humans and the environment to maximize capital accumulation.

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