

Community Centered Design: Evolving the Mission of the Creative Industry

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Focusing on the mid-20th century, this paper explores the relationship between design and economics. Then, through the postwar emergence of user-centered design, it explores the positive and negative outcomes that this dominant approach has had on larger social relations, specifically asking: How are the motivations influencing user-centered design processes inherited by its products and their users? Using case studies and insights from design theorists, historians and practitioners, the paper calls for a new approach to industry lead design research and practices that evolves the question “how does this work for me?” to include “how does this work for us?”

DESIGN AND HUMAN BEHAVIOR

When we think about our present day life, we should ask if the way we live is the result of an obvious and natural sequence of events through history. Is our present reality inescapable or could things have gone in a fundamentally different direction? Posing these questions to people who participate in the creative industry brings another layer of complexity to the issue, as they are cognizant of the complex decision-making, research and prototyping processes that go into designing products that we use to live our lives, everyday. And, those of us who work in this field know that most of the things we have created could have turned out differently. The issue at hand is our ability to understand the transformative power that design, production and economics have in shaping our culture, our values and the way we live. While there is no formula for mapping social change through time, this paper presents a story of design and economics that seeks to understand design’s influence on human behavior and vice versa in order to explore design’s role in shaping our larger, social system.

Beginning with the Great Exhibition of 1851, moving to post-war consumerism in the US and ending with the present day, I trace the emergence of user-centered design, a practice that seeks to shape products that serve the needs of individuals, as a dominant approach in today’s creative industry. Although user-centered design has had many successes, it has also played a role in the environmental and social problems that have been escalating through the 21st-century. Out of the shadow of user-centered design we may be seeing the emergence of the next phase of our collective design culture lead by businesses that are building community-centric products and services. These businesses, like Airbnb, are developing frameworks that integrate technological advancement and new user behaviors

to support sustainable economic exchange within communities and between peers. In so doing they are challenging political frameworks, broadening the possibilities of the human experience and charting a new path for the design industry through community-centered design principles.

THE MEANING OF DESIGN

Before we delve into history, it is useful to carve out a definition of “design” that we can use to ground our subject. Herbert Simon gives a useful definition in his book, *The Sciences of the Artificial*. He writes, “Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.”¹ This description encompasses design’s imaginative and transformative nature as the human capability and/or activity to improve the context in which we are situated. Through time we have used our design abilities to exert our will over nature and over each other, to identify opportunities for change and to bring that change into the world.

However, Simon’s definition is somewhat lacking in our present design culture. As technology and social contexts have evolved to become more and more sophisticated, opportunities for people in differing socio-economic, cultural and political contexts to manifest “preferred situations” are not necessarily equal. Today, most people are dependent on the design industry to create tools, products and services that deliver preferred situations. This creates a situation in which designers and businesses decide what a preferred situation might look like and non-designers purchase the products that have been created to deliver it. This evolution of design comes with some consequences. One is that normal non-designer citizens move farther away from being designers themselves and become increasingly dependent on things being imagined and created for them. Another consequence has to do with the potential for a well-designed object to generate enormous economic returns, influencing market dynamics and business success.

If it is true that design work is executed behind the closed doors of design agencies, then the contemporary design industry is left in an awkward position. A position that opens up the question: is design responsible for shaping society, or do social needs and wants dictate design practices? The answer to that question depends on the opinions of the person confronting it. But for the sake of this paper, I will defer to Kevin Kelly’s insight on technological development from his book *What Technology Wants*. Kelly writes,

So what does technology want? Technology wants what we want—the same long list of merits we crave. When a technology has found its ideal role in the world, it becomes an active agent in creating the options, choices and possibilities of others. Our task is to encourage each new invention to its inherent good, to align it in the same direction that all life is headed.²

¹ Herbert Simon, *Sciences of the Artificial* (Cambridge: MIT Press, 1999), 150.

² Kevin Kelly, *What Technology Wants* (New York: Viking, 2010), 269.

Kelly explains technology as the human vehicle of manifesting the best possible experience for all social actors. And through time, the way we design technology evolves and self-corrects to achieve the greatest social good. In this way Kelly outlines a design trajectory in which the rising tide lifts all boats, in which technology and society dynamically influence each other until a harmonious balance is reached.

In this paper, I posit that a cohesive view of design's role in shaping the present day must include a perspective on the economic motivations that influenced the development of the design industry in the 19th and 20th century. From this understanding, we can appreciate the emerging approaches that fold community-minded principles into the design of new frameworks. However, the role design has played in economic change over the past centuries are all but left out of its definition and is rarely the focal point of design history or the study of design disciplines. Nonetheless, evidence of this powerful relationship between design and economic effect surfaces as early as the industrial revolution.

THE MEN OF ART, SCIENCE AND COMMERCE

Henry Cole, British designer and organizer of the Great Exhibition of 1851, made one of the first mentions of the relationship between design and economics near the end of the Industrial Revolution in Europe. Taking place in London, the Great Exhibition was something like the first world's fair. Cole and Prince Albert of England invited the "civilized" nations to Hyde Park to display their greatest artistic and industrial achievements within the glass walls of Joseph Paxton's Crystal Palace. Queen Elizabeth opened the doors on May 1st and spectators came in droves to marvel at the roughly 100,000 objects on display, ranging from tapestries and sculptures, to printing machines, to Stevenson's hydraulic press that could lift a bridge, to McCormick's reaping machine. When the doors closed on October 11th, over 6 million people had gone through the turnstiles.

In 1852, the year following the Exhibition, Henry Cole reflected on the impact it may have had for the people he deemed responsible for the progress of the civilized world, "the men of Art, Science and Commerce". Cole saw the Exhibition as a Petri Dish of inspiration for these practitioners who prompted economic and cultural advancement in their respective countries. Foreseeing a new era of progress, Cole wrote:

Thus, for the first time in the world's history, the men of Arts, Science, and Commerce, were permitted by their respective Governments to meet together and discuss and promote these objects for which civilized nations exist. The chief business of politicians, lawyers and soldiers, is professedly to protect the results of men's industry. The men of Art, Science and Commerce, have hitherto had but a very subordinate voice in the regulation of their own interests, which have been too much left to the professional superintendence of their bretheren of Politics, Law and War...I believe the recognition of this principle is of the first importance for the progress of mankind, and is one which will be likely to stand each nation in good stead as occasion arises.³

³Henry Cole, *Lecture XII, Second Series*, Dec 1, 1852 (London: D. Bogue, 1852), 521-539.

He credited these men of “Art, Science and Commerce” as possessing the raw talent that would change the world through technology and design. As the Great Exhibition exposed them to each other’s work and liberated them from their binding political leadership, it also positioned the “civilized nations” to begin competing on a global playing field, newly possible through industrialization and free trade. From Cole’s observation on, technological advancement and manufacturing formed the early, industrialized design industry, which in turn began to change the face of society. While techniques such as user-centered design had yet to be developed, designers were flooding the nascent consumer market with highly stylized goods and citizens were enthusiastically purchasing the new products offered to them.

POST WAR USA

The design industry’s monumental impact on everyday life in the United States blossomed during the post-WW2 period. Technology developed during WW2 was re-appropriated to create a variety of products that served the growing, newly moneyed and quickly reproducing middle class. The bar of lifestyle standards was raised higher and higher as people purchased cars, single-family homes, washing machines, dishwashers, televisions, microwaves, plastics and more creations that arose from the adaptation of war-related advances in technology. Consumerism was becoming a new way of life for America. The numbers speak for themselves:

Between 1945 and 1950 consumer spending surged by 60 percent overall. And in the four years following the war, Americans purchased 21.4 million cars, 20 million refrigerators, 5.5 million stoves and 11.6 million televisions, and they moved into over 1 million new housing units each year.⁴

A problem arose when the pace of consumption caught up with technological development. As manufacturing processes scaled up, it was an economic imperative that consumers continued to consume. Wall Street Investor Paul Mazur wrote in 1953, “It is absolutely necessary that the products that roll from the assembly lines of mass production be consumed at an equally rapid rate,”⁵ or as Vance Packard crudely put it in 1960, “the way to end glut was to produce gluttons.”⁶ Designers were faced with the challenge of creating products for consumers who were no longer thriving on lifestyle change while serving their clients who were poised to continue growing the largest and most advanced consumer market known to history. The answer to this challenge produced the research processes and design skills that dominate the design industry to this day.

⁴ Heather Rogers, *Gone Tomorrow: The Hidden Life of Garbage* (New York: The New Press, 2005), 109.

⁵ Paul Mazur, *The Standards We Raise: The Dynamics of Consumption* (New York: Harper and Brothers, 1953), 19-20.

⁶ Vance Packard, *The Waste Makers* (New York: Pocket Books, 1960), 25.

THE EMERGENCE OF USER-CENTERED DESIGN

By the 1950's there was already a handful of celebrity designers: Norman Bel Geddes was made famous for the streamline style; Raymond Loewy was known for the MAYA, or the “most advanced yet acceptable” approach; the Eames' were praised for developing American modernism.

While these designers gave shape and style to products iconic to a time of change and prosperity in the US, the designer who had the most influence on the direction of the design industry is - most likely - Henry Dreyfuss. In Dreyfuss's work we can trace the beginnings of user-centered design as a technique that incorporated an understanding of the human condition into product design as a way to improve the consumer experience.

Dreyfuss (1904-1972) began his career by studying under Bel Geddes and learning the ins and outs of industrial design. In 1929 he opened his own, very commercially successful, agency called Henry Dreyfuss Associates. His clients included the telecommunications company Bell Laboratories, the industrial farming business John Deere, the railroad company Twentieth Century Limited, the steamship company American Export Lines and his office designed products that ranged from telephones, to tractors, to passenger cars and locomotives, to fountain pens and more.

What made Dreyfuss influential in his field and known by history are not the designs he created as much as the research process he developed. Incorporating the work of physicians and psychologists, Dreyfuss developed systematic research methodologies and devised techniques that are still implemented in user-centered design today. One example is his creation of personas; Dreyfuss named his Joe and Josephine. He strove to see Joe and Josephine as full human beings, with all of the emotions and sensitivities of the people who would be holding the Princess telephones and Hoover vacuum cleaners he was commissioned to make. Of their delicate natures Dreyfuss wrote, “Joe and Josephine have numerous allergies, inhibitions and obsessions. They react strongly to touch that is uncomfortable or unnatural; they are disturbed by glaring or insufficient light and by offensive coloring; they are sensitive to noise, and they shrink from disagreeable odor.”⁷ From the drawing of their anatomy, the length of their reach, their posture, positioning, and more, Dreyfuss was committed to design products that worked well for people in ways that went beyond the superficial and into their psychological and emotional selves.

Today, Dreyfuss is credited with major contributions to the fields of ergonomics and human factors research. He published multiple books, including *Designing for People* in 1955 and *The Measure of Man: Human Factors in Design* (now called *The Measure of Man and Woman*) 1960. From the time Dreyfuss was outlining Joe and Josephine's forms up to today, designers and businesses have continued to strive to understand people, in deeper and deeper ways, to create products and services that would seemingly work more perfectly for them as complex individuals with specific sets of needs and desires.

USER-CENTERED DESIGN, THE GOOD AND THE BAD

⁷ Henry Dreyfuss, *Designing for People* (New York: Simon and Schuster, 1955), 26-44.

There is little doubt that user-centered design has given us many wonderful things. We have designed objects that are sophisticated, simple and beautiful. We have made computers that fit into the palm of our hand; that allow us to navigate the world with ease and discovery, that offer services attuned to our schedules, that allow us to talk to people almost anywhere in the world at any time.

But perhaps we should wonder if our gaze has been too narrowly focused on serving individuals, and the time may have come for us to pull back to inquire to the systems that have been created in conjunction with user-centered design's rise. Let's look at the current state of affairs.

The Environment

Since the 1850's we have invented many new materials, created many products and transitioned through many stylistic periods. In so doing, we have also become quite wasteful. This wastefulness results from the fact that disposability is a feature of many of the products we use everyday. Beyond this, beginning in the 1940's, planned obsolescence was a strategic technique used by manufacturers to sell more products. In her book about the waste management system, *Gone Tomorrow*, Heather Rogers writes, "After World War II, manufacturers applied the different types of obsolescence—technological or fashion—variously to stimulate market demand."⁸ She goes on to quote a Whirlpool engineering executive in the 1950's commenting on the way the team adjusted a product's "design-life goal... from time to time as economic or other conditions change."⁹ We have also developed inefficient and unhealthy manufacturing processes, destructive methods of sourcing raw materials and of creating energy.

Today, there are landfills that can be seen from space, there are thousands of workers monotonously assembling our high tech devices in foreign factories, the amount of plastic in the ocean comprises 40% of its surface.¹⁰ New reports from the UN state that global warming will soon bring unavoidable and permanent change to our lives¹¹. It is becoming an environmental imperative that we amend our creative processes so that our desire for a high quality of life does not draw a line directly connected to the end of life on planet Earth.

Those Outside of the Market Economy

⁸ Heather Rogers, 113.

⁹ Vance Packard, 56.

¹⁰ Charles J Moore, "Choking the Oceans with Plastic," *New York Times*, August 25, 2014, http://www.nytimes.com/2014/08/26/opinion/choking-the-oceans-with-plastic.html?emc=edit_au_20140825&nl=afternoonupdate&nid=54633224&r=1.

¹¹ Justin Gillis, "Panels Warning on Climate Risk: the Worst is Yet to Come," *New York Times*, March 31, 2014, <http://www.nytimes.com/2014/04/01/science/earth/climate.html?module=Search&mabReward=relbias%3As%2C%7B%221%22%3A%22RI%3A9%22%7D>.

Although the market economy has grown since the postwar era, the percentage of the population that most design work is directed to serve is quite small. As shown by the Cooper-Hewitt's exhibition, *Design for the Other 90%*, most design processes create products that are only available to and/or affordable for 10% of the global population. And, most products of the user-design process are made specifically for individuals, intended to be purchased by individuals and used by individuals. How should we think about the people who are not in a position to make a purchase? Does the innovation that spurs economic development bring anything to their lives? Or is their existence outside of the concern or care of the great design minds of our time?

This creates a situation in which certain people, specifically those people who can participate in the market economy, become central to, and the focus of, design research. From a philosophical point of view, this undermines the design's human nature. As our everyday lives become increasingly artificial and the products that we create grow increasingly high-tech, is user-centered design leaving some (perhaps a great deal) of human beings out of the picture completely? And if these humans are left out of the design process, how are the rest of us affected by their absence? Additionally, the relationship between good design and purchase power may have deep social consequences as it creates a situation in which people that live in the same location have unequal access to technologies and other services. This imbalance may promote uneven social, educational and economic development and manifest various expressions of social unrest.

Design As A Political and Ideological Activity

This last issue has to do with the way our design of the world has affected the way we see each other and ourselves. In the book *Thoughtful Interaction Design*, authors Erik Stolterman and Jonas Lowgren write,

Design is also a political and ideological activity. Since every design affects our possibilities for actions and our way of being in the world, it becomes a political and ideological action. With designed artifacts, processes, systems, and structures we decide our relations with each other, society and nature. Each design is carrying out a set of basic assumptions about what it means to be human, to live in a society, to work and to play.¹²

If it is true that design and economics have shaped the social conditions of our world, and we can posit that our design culture has been strongly influenced to serve the market economy, how has it affected our way of being in the world? When we use products that are designed by processes that see us as individuals – both in society and as economic actors – do we begin to see ourselves through the same lens, as a network of individuals to be valued for our purchase power instead of social beings with a shared stake in the future, all equally

¹²Jonas Lowgren and Erik Stolterman, *Thoughtful Interaction Design: A Design Perspective on Information Technology* (Cambridge: MIT Press, 2004), 10.

dependent upon the same environment? Do we measure our quality of life and possibility of experience by what we can purchase, even compete with our neighbor to possess it?

Many of the issues outlined above are unintended consequences of design's success in shaping and stabilizing the consumer market over a 150-year period. As members of the design and business community we should not shy from these issues or ignore these questions. We should confront them by looking to our research processes and rethinking our approach to creative work as not only directed to user-centered design but broaden our view to include the next formation of human relations beyond the individual: the community. Our approach to design research should no longer stop at the question of "how does this work for me?" but it should go on to include "how does this work for us?"

THE EMERGENCE OF COMMUNITY-CENTERED DESIGN

Just as user-centered design emerged in the 1950's, we may be seeing the emergence of a design approach that is developing principles that reach beyond the *me* and towards the *us*. I am calling this: community-centered design.

No longer does the word "community" describe only people who live in the same geographical area. Since the internet has become part of everyday life in the US and social media has risen to prominence, the definitions of "community" have continued to change and evolve. Now, there are services and businesses engaging these new communities by using digital technology to redefine the relationship between economics and community participation. Most often grouped under the category of "the sharing economy", "service design" or the "peer-to-peer" network, the factors that come together to define the community-centered nature of their approach are hazy and lack clear indicators or terms. Instead, it makes sense to surface the principles that are guiding the design of their products, principles that may define the next phase of design history.

DESIGN PRINCIPLES FOR MANAGING COMPLEX SYSTEMS

Elinor Ostrom, the only woman to ever win the Nobel Prize in Economic Sciences, developed a set of design principles that she found to "characterize the most robust of self-organizing systems"¹³. Ostrom's research was directed to understand the way individuals engage with common-pool resources (CPR). Often dealing with resources such as farmland and fishing grounds, her work lends valuable insight to how we can think about design for the management of interactions of complex communities and digital platforms. Ostrom posited that there was no golden rule that could enable the just sharing of resources between groups of individuals, but there was a set of rules that could be cherry picked according to the circumstances of the system in question. She writes,

By differing, the particular rules take into account specific attributes of the related physical systems, cultural views of the world, and the

¹³ Elinor Ostrom, *Design Principles and Threats to Sustainable Organizations that Manage Commons*, (Bloomington: University of Indiana Press, 2009), 1.

economic and political relationships that exist in the setting. Without different rules, users could not take advantage of the positive features of a local CPR or avoid potential pitfalls that could occur in one setting but not others.¹⁴

Synonyms for her “design principles”, these rules work to drive the relations between individuals so that dynamic systems can function sustainably over long periods of time. The principles range from clearly defined boundaries, to collective choice arrangements, to conflict-resolution mechanisms. There is evidence of these design principles in the user-experience, business model and digital interfaces of many of the businesses tapping into this new community-centered approach.

AN EXAMPLE: AIRBNB

While there is no business that serves as a perfect example of community-centered design, Airbnb offers some valuable clues to how this approach may develop and the kinds of changes it could instigate on social and political fronts. For this reason, its business model and the design of its platform offer a fitting example for the community-centric ideas explored in this paper.

Founded in San Francisco in 2008, Airbnb describes itself as, “a trusted community marketplace for people to list, discover, and book unique accommodations around the world — online or from a mobile phone.”¹⁵ Essentially Airbnb acts as a digital marketplace in which “hosts” can rent property to “guests” based on requirements set and agree upon by the two parties involved. As of 2014, Airbnb has 500,000 properties offered by 350,000 hosts in 34,000 cities in 192 countries. On July 5th 2014, Airbnb had its biggest night ever with 330,000 guests staying in over 160 countries. The business is valued at \$10 billion.

It is easy to let Airbnb’s market value and business growth overshadow the innovative design of its service to users. On a basic level, it facilitates a digital agreement between two parties in which money is exchanged for the rights to use another’s property. In this way, Airbnb has created a digital framework in which economic exchange does not equate ownership. Instead, one user pays and the other agrees to share. And, in almost all cases, the thing that is being shared is a person’s home.

If we can assume that staying in someone else’s house, or inviting a stranger into your home is not something to be taken lightly, then Airbnb promotes a level of intimacy that is not often shared between strangers. In the *New York Times* article, *Welcome to the Sharing Economy* Thomas Friedman interviewed Airbnb’s CEO Brian Chesky and reported,

While it sounds like Chesky is just a global rental agent with more scale, there is something much bigger going on here. Airbnb’s real innovation is not online rentals. It’s “trust.” It created a framework of trust that has

¹⁴ Ibid.

¹⁵ Airbnb. “About Us.” Accessed August 20, 2014. <https://www.airbnb.com/about/about-us>.

made tens of thousands of people comfortable renting rooms in their homes to strangers.¹⁶

Of course not all guest/host stories are positive, but on the whole, the service is working very well and its strong user experience is not accidental. There is evidence of Ostrom's design principles in the way Airbnb engages its users, including: "clearly defined boundaries" which relates to the host consenting to the guest and having the final determination on the terms of the rental; "graduated sanctions" which includes hosts and guests reviewing each other in blog-like forums and; "conflict-resolution mechanisms" which would include the insurance policy that Airbnb uses to cover all of its host's rentals in case of a guest who does not behave as expected. Airbnb continues to grow everyday as more and more people see the value that it could bring to their lives.

AIRBNB IN NYC

As Airbnb is creating a digital community of global users, it is also challenging the political and social frameworks in physical communities, most prominently, New York City.

On a social front, while some NYC residents are enthusiastic participants of the Airbnb community, others are not. Of the NYC Airbnb hosts, 62% claim that the income they make by renting their residence allows them to continue living in the city, return to school, start businesses and work toward other goals. On the other end of the spectrum, housing advocates claim that Airbnb is causing landlords to raise rent as they realize tenants are generating income as Airbnb hosts. Does Airbnb bring long-term stability and economic growth to the community of NYC residents or does it make NYC more difficult to live in, thereby causing transience and economic hardship? The answer is unknown.

On the political front, New York government officials have made it clear that Airbnb has been inadvertently taking money away from the state. In 2010, two years after Airbnb launched, a law was passed in NYC making it illegal for a full apartment to be rented out for less than 30 days if the owner is not present. Eric Schneiderman, the Attorney General for the State of New York, began subpoenaing Airbnb for 16,000 of its NYC hosts' data in order to identify NYC residents who were operating "illegal hotels", thereby avoiding a 15% occupancy tax due to the state. After much back and forth, Airbnb agreed to share the data with the Attorney General after it had been scrubbed of all information that could be used to identify the host. After Schneiderman's team presumably analyzed the data, Airbnb agreed to share the names of 124 hosts who operate more than one listing, which Airbnb says, "represents a small fraction of its NYC hosting community – far less than 1%."¹⁷ As regulators, business owners, users and citizens continue to fight for their rights, the future technology and design for Airbnb and other similar services will come into focus.

¹⁶Thomas Friedman, "Welcome to the Sharing Economy," *New York Times*, July 20, 2013, http://www.nytimes.com/2013/07/21/opinion/sunday/friedman-welcome-to-the-sharing-economy.html?_r=0.

¹⁷Tom Huddleson Jr, "Airbnb to Reveal Names of 124 Hosts to New York's Attorney General," *Fortune*, August 22, 2014, <http://fortune.com/2014/08/22/airbnb-to-reveal-124-hosts-identities-to-new-yorks-attorney-general/>.

Social and political issues such that Airbnb is currently experiencing are emblematic of the trials and tribulations of other innovations throughout design history. Writing of Airbnb's place in changing the character of 20th century economics, Thomas Friedman said, "The 20th century was powered by big corporations that standardized everything because they never really know their customer," then quoting Chesky, "The 21st century will be powered by people."¹⁸ On a basic level, this is what Airbnb does, it brings people together who benefit from each others resources. And, these innovations trigger all sorts of other changes. Attorney General Eric Schneiderman wrote of his struggle regulating companies such as Airbnb,

Cyberlibertarians argue that regulators often lack the tools or the know-how to provide smart enforcement. They are not entirely wrong. But that doesn't mean regulation is unnecessary. Nor does it excuse those same critics for refusing to work with the government agencies that must develop those tools.¹⁹

Schneiderman's articulation of his predicament echoes Kevin Kelly's understanding of the path of technological development. In this case, Airbnb is on top and Schneiderman's team is struggling to regulate the social and economic change occurring through these technological advancements while wondering how these designs could serve their needs, which are becoming increasingly complex in a technology-driven society.

THE INDIVIDUAL TO THE COMMUNITY

Airbnb is just one example of the many emerging businesses and products that are beginning to carve out a space for community-centered design. Businesses like Uber are challenging the taxi industry by connecting drivers and riders, housing development companies like Lennar Corporation in Florida and Standard Pacific Homes in California are promoting multi-generational housing floorplans²⁰, and there are changes in many other industries, from energy to airlines and beyond.

We are part of a constantly evolving trajectory, we came from somewhere and we are going somewhere. As designers and business leaders, we should strive to shape that trajectory to serve each other and the planet to the best of our abilities and to expand upon the process of designing for the individual to include the complexities and relations of communities. We can begin doing this by using a biproduct of technological advancement:

¹⁸ Thomas Friedman, "And Now For a Bit of Good News...", *New York Times*, July 19, 2014, <http://www.nytimes.com/2014/07/20/opinion/sunday/thomas-l-friedman-and-now-for-a-bit-of-good-news.html>.

¹⁹ Catherine Yang, "How Tech Companies Are Changing the Rules in NYC," *Epoch Times*, August 24, 2014, <http://www.theepochtimes.com/n3/906644-how-tech-companies-are-changing-the-rules-in-nyc/?photo=2>.

²⁰ Paul Taylor, *The Next America: Boomers, Millennials and the Looming Generation Showdown* (New York: Public Affairs, 2014).

data. There is data collected by government services and opened to the public (as Bloomberg did for New York City), data offered by other open source models, and data collected in client projects that we work on. As mobile becomes increasingly prevalent researchers will continue to have access to even more data. We should seek ways to leverage this material in our design and research processes to identify underserved communities, communities that operate below the radar of our current focus, and explore the design of products and services that appreciate and value their interconnectivity. Perhaps this is how we can begin using design to create behavioral change in a constantly evolving industry that affects and shapes the social nature of our global community.

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NOTES

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