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# THE AGE OF SURVEILLANCE CAPITALISM

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THE FIGHT FOR A  
HUMAN FUTURE  
AT THE NEW  
FRONTIER OF POWER

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SHOSHANA  
ZUBOFF

'The true prophet of the information age' *FT*



SHOSHANA ZUBOFF is the author of three books, each of which signalled the start of a new epoch in technological society. In the late 1980s, *In the Age of the Smart Machine* foresaw how computers would revolutionise the modern workplace. At the dawn of the twenty-first century, *The Support Economy* predicted the rise of a digitally mediated 'distributed capitalism' of services tailored to the individual. Today, *The Age of Surveillance Capitalism* reveals a world in which technology users are no longer customers but the raw material for an entirely new industrial system. She is the Charles Edward Wilson Professor Emerita at Harvard Business School and Faculty Associate at the Berkman Center for Internet and Society at Harvard Law School.

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'It's quite possible that the single most important book about politics, economics, culture and society in this century is Shoshana Zuboff's *The Age of Surveillance Capitalism*'

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*Irish Times*

'A step-by-step account of the building of the digital iron cage'

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'Everyone needs to read this book as an act of digital self-defence'

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"From the very first page I was consumed with an overwhelming imperative: everyone needs to read this book as an act of digital self-defense. With tremendous lucidity and moral courage, Zuboff demonstrates not only how our minds are being mined for data but also how they are being rapidly and radically changed in the process. The hour is late and much has been lost already—but as we learn in these indispensable pages, there is still hope for emancipation" Naomi Klein, author of *The Shock Doctrine*

"A continuation of a tradition that includes Adam Smith, Max Weber, Karl Polanyi and—dare I say it—Karl Marx ... If we fail to tame the new capitalist mutant rampaging through our societies then we will only have ourselves to blame, for we can no longer plead ignorance." John Naughton, *Observer*

"An intensively researched, engagingly written chronicle of surveillance capitalism's origins and its deleterious prospects for our society ... This is the rare book that we should trust to lead us down the long hard road of understanding." Jacob Silverman, *New York Times*

"A bold, important book ... Combining in-depth technical understanding and a broad, humanistic scope, Zuboff has written what may prove to be the first definitive account of the economic—and thus social and political—condition of our age." James Bridle, *Guardian*

"Comprehensive and impassioned ... an important book" Bryan Appleyard, *Sunday Times*

"It's quite possible that the single most important book about politics, economics, culture and society in this century is Shoshana Zuboff's *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. She explains with far more power than anyone has done before the emergence of a whole new form of capitalism based on the expropriation of the personal data we freely give to vast corporations. It's the *Das Kapital* for our times." Fintan O'Toole, *Irish Times*

"Groundbreaking ... Aiming to apply Marx's account of surplus value in a time when capital is accumulated through knowledge-based technology, she has given us an illuminating critical perspective on the regime of surveillance under which we all now live." John Gray, *New Statesman*

"An exceptional and necessary book about the information civilisation we have become." David Patrikarakos, *Literary Review*

"Extraordinarily intelligent ... Absorbing Zuboff's methodical determination, the way she pieces together sundry examples into this comprehensive work of scholarship and synthesis, requires patience, but the rewards are considerable—a heightened sense of awareness, and a deeper appreciation of what's at stake."  
Jennifer Szalai, *New York Times*

"[It] will surely become a pivotal work in defining, understanding and exposing this surreptitious exploitation of our data and, increasingly, our free will ... essential." Karlin Lillington, *Irish Times*

"This book's major contribution is to give a name to what's happening, to put it in cultural and historical perspective, and to ask us to pause long enough to think about the future and how it might be different from today." Frank Rose, *WSJ*

"Original ... it arrives at a crucial moment, when the public and its elected representatives are at last grappling with the extraordinary power of digital media and the companies that control it. Like another recent masterwork of economic analysis, Thomas Piketty's 2013 *Capital in the Twenty-First Century*, the book challenges assumptions, raises uncomfortable questions about the present and future, and stakes out ground for a necessary and overdue debate." Nicholas Carr, *LARB*

"Zuboff's blow-by-blow accounts of the key players ignoring, mocking and finally riding roughshod over even governmental efforts to stop them are consistently shocking." Katrina Gulliver, *TLS*

"*The Age of Surveillance Capitalism* has been compared to seminal works from Adam Smith's *The Wealth of Nations* to Thomas Piketty's *Capital in the Twenty-First Century*, and with good reason. It provides a wide-ranging analysis of how we now live and consume, plus practical suggestions for what needs to happen next. By naming and explaining an unease we have struggled to articulate, Zuboff gives us the vocabulary and tools to fight back." *Changeboard Magazine*

"I will make a guarantee: Assuming we survive to tell the tale, *The Age of Surveillance Capitalism* has a high probability of joining the likes Adam Smith's *The Wealth of Nations* and Max Weber's *Economy and Society* as defining social-economics texts of modern times. It is not a 'quick read;' it is to be savored and re-read and discussed with colleagues and friends. No zippy one-liners from me, except to almost literally beg you to read/ingest this book." Tom Peters, author of *In Search of Excellence*

"*The Age of Surveillance Capitalism* is brilliant and essential ... a masterpiece of rare conceptual daring, beautifully written and deeply urgent." Robert B. Reich, author of *The Common Good* and *Saving Capitalism: For the Many, Not the Few*

"The defining challenge for the future of the market economy is the concentration of data, knowledge, and surveillance power. Not just our privacy but our individuality is at stake, and this very readable and thought-provoking book alerts us to these existential dangers. Highly recommended." Daron Acemoglu, author of *Why Nations Fail*

"In the future, if people still read books, they will view this as the classic study of how everything changed. *The Age of Surveillance Capitalism* is a masterpiece that stunningly reveals the essence of twenty-first-century society, and offers a dire warning about technology gone awry that we ignore at our peril. Shoshana Zuboff has somehow escaped from the fishbowl in which we all now live, and introduced to us the concept of water. A work of penetrating intellect, this is also a deeply human book about what is becoming, as it relentlessly demonstrates, a dangerously inhuman time." Kevin Werbach, The Wharton School, University of Pennsylvania, and author of *The Blockchain and The New Architecture of Trust*

"A panoramic exploration of one of the most urgent issues of our times, Zuboff reinterprets contemporary capitalism through the prism of the digital revolution, producing a book of immense ambition and erudition. Zuboff is one of our most prescient and profound thinkers on the rise of the digital. In an age of inane Twitter soundbites and narcissistic Facebook posts, Zuboff's serious scholarship is great cause for celebration." Andrew Keen, author of *How to Fix the Future*

"Shoshana Zuboff has produced the most provocative compelling moral framework thus far for understanding the new realities of our digital environment and its anti-democratic threats. From now on, all serious writings on the internet and society will have to take into account *The Age of Surveillance Capitalism*." Joseph Turow, Robert Lewis Shayon Chair Professor, Annenberg School, University of Pennsylvania

"Zuboff is a strikingly original voice, simultaneously bold and wise, eloquent and passionate learned and accessible. Read this book to understand the inner workings of today's digital capitalism its threats to twenty-first century society, and the reforms we must make for a better tomorrow." Frank Pasquale, University of Maryland Carey School of Law

"My mind is blown on every page by the depth of Shoshana's research, the breadth of her knowledge, the rigor of her intellect, and finally by the power of her arguments. I'm not sure we can end the age of surveillance capitalism without her help, and that's why I believe this is the most important book of our time."  
Doc Searls, author of *The Intention Economy* and editor-in-chief of *Linux Journal*

## THE DEFINITION

### Sur-veil-lance Cap-i-tal-ism, n.

1. A new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales;
2. A parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification;
3. A rogue mutation of capitalism marked by concentrations of wealth, knowledge, and power unprecedented in human history;
4. The foundational framework of a surveillance economy;
5. As significant a threat to human nature in the twenty-first century as industrial capitalism was to the natural world in the nineteenth and twentieth;
6. The origin of a new instrumentarian power that asserts dominance over society and presents startling challenges to market democracy;
7. A movement that aims to impose a new collective order based on total certainty;
8. An expropriation of critical human rights that is best understood as a coup from above: an overthrow of the people's sovereignty.



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# HOME OR EXILE IN THE DIGITAL FUTURE

*I saw him crying, shedding floods of tears upon  
Calypso's island, in her chambers.  
She traps him there; he cannot go back home.*

—HOMER, *THE ODYSSEY*

## *I. The Oldest Questions*

“Are we all going to be working for a smart machine, or will we have smart people around the machine?” The question was posed to me in 1981 by a young paper mill manager sometime between the fried catfish and the pecan pie on my first night in the small southern town that was home to his mammoth plant and would become my home periodically for the next six years. On that rainy night his words flooded my brain, drowning out the quickening *tap tap tap* of raindrops on the awning above our table. I recognized the oldest political questions: Home or exile? Lord or subject? Master or slave? These are eternal themes of knowledge, authority, and power that can never be settled for all time. There is no end of history; each generation must assert its will and imagination as new threats require us to retry the case in every age.

Perhaps because there was no one else to ask, the plant manager's voice was weighted with urgency and frustration: “What's it gonna be? Which way are we supposed to go? I must know now. There is no time to spare.” I wanted the answers, too, and so I began the project that thirty years ago became my first book, *In the Age of the Smart Machine: The Future of Work*

### III. What Is Surveillance Capitalism?

Surveillance capitalism unilaterally claims human experience as free raw material for translation into behavioral data. Although some of these data are applied to product or service improvement, the rest are declared as a proprietary *behavioral surplus*, fed into advanced manufacturing processes known as “machine intelligence,” and fabricated into *prediction products* that anticipate what you will do now, soon, and later. Finally, these prediction products are traded in a new kind of marketplace for behavioral predictions that I call *behavioral futures markets*. Surveillance capitalists have grown immensely wealthy from these trading operations, for many companies are eager to lay bets on our future behavior.

As we shall see in the coming chapters, the competitive dynamics of these new markets drive surveillance capitalists to acquire ever-more-predictive sources of behavioral surplus: our voices, personalities, and emotions. Eventually, surveillance capitalists discovered that the most-predictive behavioral data come from intervening in the state of play in order to nudge, coax, tune, and herd behavior toward profitable outcomes. Competitive pressures produced this shift, in which automated machine processes not only *know* our behavior but also *shape* our behavior at scale. With this reorientation from knowledge to power, it is no longer enough to automate information flows *about us*; the goal now is to *automate us*. In this phase of surveillance capitalism’s evolution, the means of production are subordinated to an increasingly complex and comprehensive “means of behavioral modification.” In this way, surveillance capitalism births a new species of power that I call *instrumentarianism*. Instrumentarian power knows and shapes human behavior toward others’ ends. Instead of armaments and armies, it works its will through the automated medium of an increasingly ubiquitous computational architecture of “smart” networked devices, things, and spaces.

In the coming chapters we will follow the growth and dissemination of these operations and the instrumentarian power that sustains them. Indeed, it has become difficult to escape this bold market project, whose tentacles reach from the gentle herding of innocent Pokémon Go players to eat, drink, and purchase in the restaurants, bars, fast-food joints, and shops that pay to

by the stubborn power of the robber barons and the monopolist economics that ruled their kingdoms. He decried the “wastefulness” and “cruelty” of US capitalism: “Our production, our factory laws, our charities, our relations between capital and labor, our distribution—all wrong, out of gear.” Both Edison and Ford understood that the modern industrial civilization for which they harbored such hope was careening toward a darkness marked by misery for the many and prosperity for the few.

Most important for our conversation, Edison and Ford understood that the moral life of industrial civilization would be shaped by the practices of capitalism that rose to dominance in their time. They believed that America, and eventually the world, would have to fashion a new, more rational capitalism in order to avert a future of misery and conflict. Everything, as Edison suggested, would have to be reinvented: new technologies, yes, but these would have to reflect new ways of understanding and fulfilling people’s needs; a new economic model that could turn those new practices into profit; and a new social contract that could sustain it all. A new century had dawned, but the evolution of capitalism, like the churning of civilizations, did not obey the calendar or the clock. It was 1912, and still the nineteenth century refused to relinquish its claim on the twentieth.

The same can be said of our time. As I write these words, we are nearing the end of the second decade of the twenty-first century, but the economic and social contests of the twentieth continue to tear us apart. These contests are the stage upon which surveillance capitalism made its debut and rose to stardom as the author of a new chapter in the long saga of capitalism’s evolution. This is the dramatic context to which we will turn in the opening pages of Part I: the place upon which we must stand in order to evaluate our subject in its rightful context. Surveillance capitalism is not an accident of overzealous technologists, but rather a rogue capitalism that learned to cunningly exploit its historical conditions to ensure and defend its success.

## *VI. The Outline, Themes, and Sources of this Book*

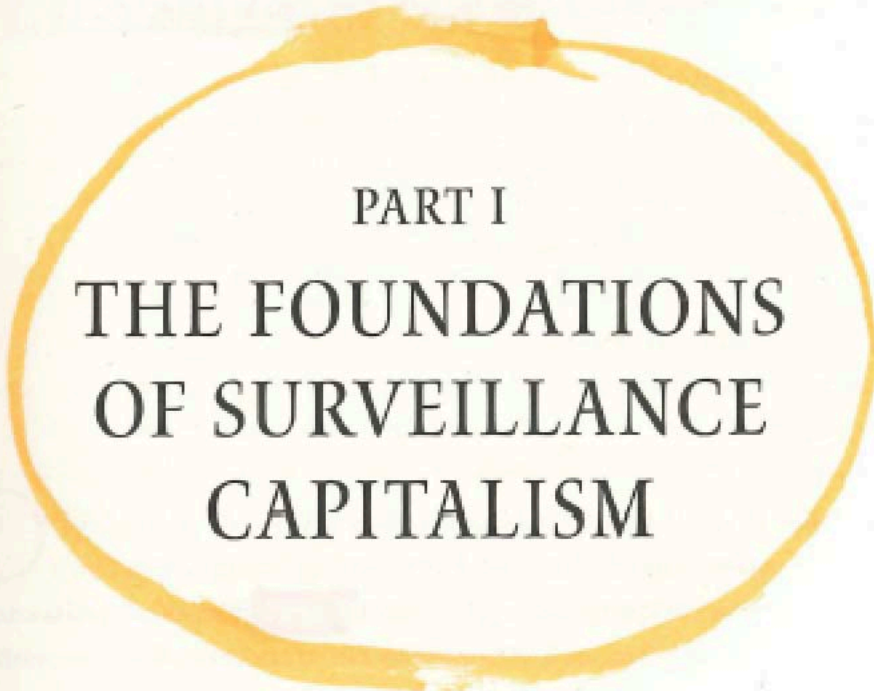
This book is intended as an initial mapping of a terra incognita, a first foray that I hope will pave the way for more explorers. The effort to understand

surveillance capitalism and its consequences has dictated a path of exploration that crosses many disciplines and historical periods. My aim has been to develop the concepts and frameworks that enable us to see the pattern in what have appeared to be disparate concepts, phenomena, and fragments of rhetoric and practice, as each new point on the map contributes to materializing the puppet master in flesh and bone.

Many of the points on this map are necessarily drawn from fast-moving currents in turbulent times. In making sense of contemporary developments, my method has been to isolate the deeper pattern in the welter of technological detail and corporate rhetoric. The test of my efficacy will be in how well this map and its concepts illuminate the unprecedented and empower us with a more cogent and comprehensive understanding of the rapid flow of events that boil around us as surveillance capitalism pursues its long game of economic and social domination.

*The Age of Surveillance Capitalism* has four parts. Each presents four to five chapters as well as a final chapter intended as a coda that reflects on and conceptualizes the meaning of what has gone before. Part I addresses the foundations of surveillance capitalism: its origins and early elaboration. We begin in Chapter 1 by setting the stage upon which surveillance capitalism made its debut and achieved success. This stage setting is important because I fear that we have contented ourselves for too long with superficial explanations of the rapid rise and general acceptance of the practices associated with surveillance capitalism. For example, we have credited notions such as "convenience" or the fact that many of its services are "free." Instead, Chapter 2 explores the social conditions that summoned the digital into our everyday lives and enabled surveillance capitalism to root and flourish. I describe the "collision" between the centuries-old historical processes of individualization that shape our experience as self-determining individuals and the harsh social habitat produced by a decades-old regime of neoliberal market economics in which our sense of self-worth and needs for self-determination are routinely thwarted. The pain and frustration of this contradiction are the condition that sent us careening toward the internet for sustenance and ultimately bent us to surveillance capitalism's draconian quid pro quo.

Part I moves on to a close examination of surveillance capitalism's invention and early elaboration at Google, beginning with the discovery and



PART I

THE FOUNDATIONS  
OF SURVEILLANCE  
CAPITALISM

## CHAPTER TWO

# AUGUST 9, 2011: SETTING THE STAGE FOR SURVEILLANCE CAPITALISM

*The dangers and the punishments grew greater,  
And the way back by angels was defended  
Against the poet and the legislator.*

—W. H. AUDEN

SONNETS FROM CHINA, II

On August 9, 2011, three events separated by thousands of miles captured the bountiful prospects and gathering dangers of our emerging information civilization. First, Silicon Valley pioneer Apple promised a digital dream of new solutions to old economic and social problems, and finally surpassed Exxon Mobil as the world's most highly capitalized corporation. Second, a fatal police shooting in London sparked extensive rioting across the city, engulfing the country in a wave of violent protests. A decade of explosive digital growth had failed to mitigate the punishing austerity of neoliberal economics and the extreme inequality that it produced. Too many people had come to feel excluded from the future, embracing rage and violence as their only remedies. Third, Spanish citizens asserted their rights to a human future when they challenged Google by demanding "the right to be forgotten." This milestone alerted the world to how quickly the cherished dreams of a more just and democratic digital future were shading into nightmare, and it foreshadowed a global political contest over the fusion of digital capabilities and capitalist ambitions. We relive that August day every day as in some ancient



## CHAPTER THREE

# THE DISCOVERY OF BEHAVIORAL SURPLUS

*He watched the stars and noted birds in flight;  
A river flooded or a fortress fell:  
He made predictions that were sometimes right;  
His lucky guesses were rewarded well.*

—W. H. AUDEN

SONNETS FROM CHINA, VI

### I. Google: The Pioneer of Surveillance Capitalism

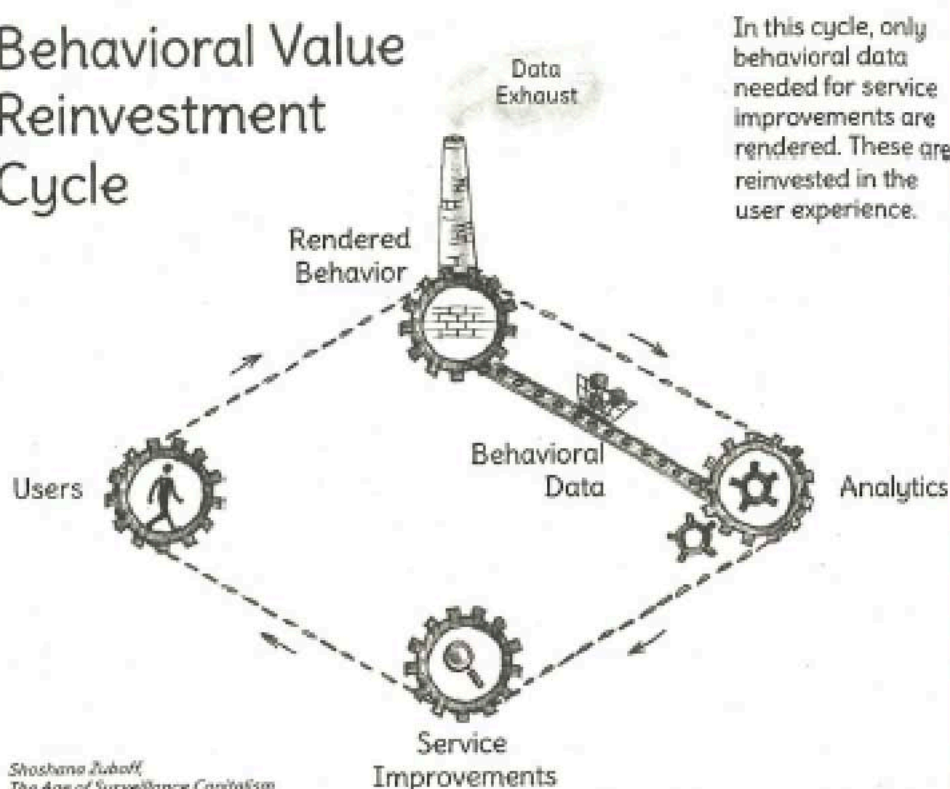
Google is to surveillance capitalism what the Ford Motor Company and General Motors were to mass-production-based managerial capitalism. New economic logics and their commercial models are discovered by people in a time and place and then perfected through trial and error. In our time Google became the pioneer, discoverer, elaborator, experimenter, lead practitioner, role model, and diffusion hub of *surveillance capitalism*. GM and Ford's iconic status as pioneers of twentieth-century capitalism made them enduring objects of scholarly research and public fascination because the lessons they had to teach resonated far beyond the individual companies. Google's practices deserve the same kind of examination, not merely as a critique of a single company but rather as the starting point for the codification of a powerful new form of capitalism.

With the triumph of mass production at Ford and for decades thereafter, hundreds of researchers, businesspeople, engineers, journalists, and scholars would excavate the circumstances of its invention, origins, and

we are the sources of raw-material supply. As we shall see, surveillance capitalism's unusual products manage to be derived from our behavior while remaining indifferent to our behavior. Its products are about predicting us, without actually caring what we do or what is done to us.

To summarize, at this early stage of Google's development, whatever Search users inadvertently gave up that was of value to the company they also used up in the form of improved services. In this reinvestment cycle, serving users with amazing Search results "consumed" all the value that users created when they provided extra behavioral data. The fact that users needed Search about as much as Search needed users created a balance of power between Google and its populations. People were treated as ends in themselves, the subjects of a nonmarket, self-contained cycle that was perfectly aligned with Google's stated mission "to organize the world's information, making it universally accessible and useful."

## Behavioral Value Reinvestment Cycle



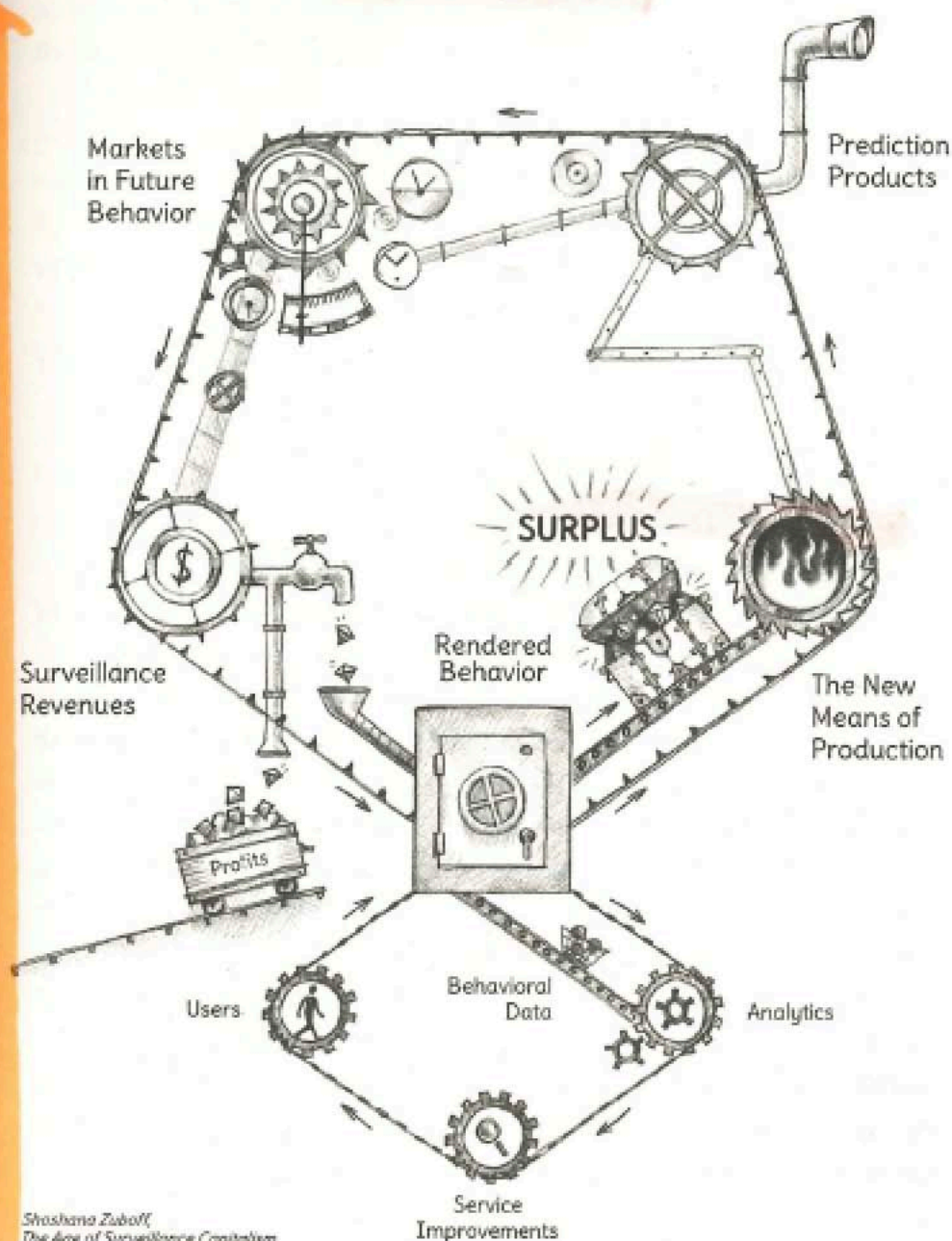
In this cycle, only behavioral data needed for service improvements are rendered. These are reinvested in the user experience.

*Shoshana Zuboff*  
*The Age of Surveillance Capitalism*

Figure 1: The Behavioral Value Reinvestment Cycle

# The Discovery of Behavioral Surplus

Surveillance capitalism begins with the discovery of behavioral surplus. More behavioral data are rendered than required for service improvements. This surplus feeds machine intelligence - the new means of production - that fabricates predictions of user behavior. These products are sold to business customers in new behavioral futures markets. The Behavioral Value Reinvestment Cycle is subordinated to this new logic.



*Shoshana Zuboff*  
*The Age of Surveillance Capitalism*

Figure 2: The Discovery of Behavioral Surplus

## CHAPTER FOUR

# THE MOAT AROUND THE CASTLE

*The hour of birth their only time in college,  
They were content with their precocious knowledge,  
To know their station and be right forever.*

—W. H. AUDEN

SONNETS FROM CHINA, I

### *I. Human Natural Resources*

Google's former CEO Eric Schmidt credits Hal Varian's early examination of the firm's ad auctions with providing the eureka moment that clarified the true nature of Google's business: "All of a sudden, we realized we were in the auction business."<sup>1</sup> Larry Page is credited with a very different and far more profound answer to the question "What is Google?" Douglas Edwards recounts a 2001 session with the founders that probed their answers to that precise query. It was Page who ruminated, "If we did have a category, it would be *personal information*. . . . The places you've seen. Communications. . . . Sensors are really cheap. . . . Storage is cheap. Cameras are cheap. People will generate enormous amounts of data. . . . Everything you've ever heard or seen or experienced will become searchable. Your whole life will be searchable."<sup>2</sup>

Page's vision perfectly reflects the history of capitalism, marked by taking things that live outside the market sphere and declaring their new life as market commodities. In historian Karl Polanyi's 1944 grand narrative of the "great transformation" to a self-regulating market economy, he described the origins of this translation process in three astonishing and crucial mental

# THE ELABORATION OF SURVEILLANCE CAPITALISM: KIDNAP, CORNER, COMPETE

*All words like Peace and Love,  
all sane affirmative speech,  
had been soiled, profaned, debased  
to a horrid mechanical screech.*

—W. H. AUDEN

“WE TOO HAD KNOWN GOLDEN HOURS”

## *I. The Extraction Imperative*

“Our ultimate ambition is to transform the overall Google experience, making it beautifully simple,” Larry Page said, “*almost automagical because we understand what you want and can deliver it instantly.*”<sup>1</sup> In the drive to fulfill this ambition, the extraction imperative produces a relentless push for scale in supply operations. There can be no boundaries that limit scale in the hunt for behavioral surplus, no territory exempted from plunder. The assertion of decision rights over the expropriation of human experience, its translation into data, and the uses of those data are collateral to this process, inseparable as a shadow. This explains why Google’s supply chains began with Search but steadily expanded to encompass new and even-more-ambitious territories far from clicks and queries. Google’s stores of behavioral surplus now embrace everything in the online milieu: searches, e-mails, texts, photos, songs, messages, videos, locations, communication patterns, attitudes, preferences, interests, faces, emotions, illnesses, social networks, purchases, and so on. A

# HIJACKED: THE DIVISION OF LEARNING IN SOCIETY

*They wondered why the fruit had been forbidden:  
It taught them nothing new. They hid their pride,  
But did not listen much when they were chidden:  
They knew exactly what to do outside.*

—W. H. AUDEN  
SONNETS FROM CHINA, I

## I. The Google Declarations

On December 4, 1492, Columbus escaped the onshore winds that had prevented his departure from the island that we now call Cuba. Within a day he dropped anchor off the coast of a larger island known to its people as Quisqueya or Bohio, setting into motion what historians call the “conquest pattern.” It’s a design that unfolds in three phases: the invention of legalistic measures to provide the invasion with a gloss of justification, a declaration of territorial claims, and the founding of a town to legitimate and institutionalize the conquest.<sup>1</sup> The sailors could not have imagined that their actions that day would write the first draft of a pattern whose muscle and genius would echo across space and time to a digital twenty-first century.

On Bohio, Columbus finally found a thriving material culture worthy of his dreams and the appetites of the Spanish monarchs. He saw gold, elaborate stone and woodwork, “ceremonial spaces . . . stone-lined ball courts . . . stone collars, pendants, and stylized statues . . . richly carved wooden thrones . . . elaborate personal jewelry . . .” Convinced that the island was “his best find

your fault and not that of His Majesty, nor mine, nor of the gentlemen who came with me."<sup>9</sup>

Conquest by declaration should sound familiar because the facts of surveillance capitalism have been carried into the world on the strength of six critical *declarations* pulled from thin air when Google first asserted them. That the facts they proclaimed have been allowed to stand is evident in the dispossession strategies of Verizon and other new entrants to the surveillance capitalist firmament. In the rapture of the young firm's achievements, Google's founders, fans, and adoring press passed over in silence the startling vision of invasion and conquest concealed in these assertions.<sup>10</sup>

The six declarations laid the foundation for the wider project of surveillance capitalism and its original sin of dispossession. They must be defended at any cost because each declaration builds on the one before it. If one falls, they all fall:

- We claim human experience as raw material free for the taking. On the basis of this claim, we can ignore considerations of individuals' rights, interests, awareness, or comprehension.
- On the basis of our claim, we assert the right to take an individual's experience for translation into behavioral data.
- Our right to take, based on our claim of free raw material, confers the right to own the behavioral data derived from human experience.
- Our rights to take and to own confer the right to know what the data disclose.
- Our rights to take, to own, and to know confer the right to decide how we use our knowledge.
- Our rights to take, to own, to know, and to decide confer our rights to the conditions that preserve our rights to take, to own, to know, and to decide.

Thus, the age of surveillance capitalism was inaugurated with six declarations that defined it as an age of conquest. Surveillance capitalism succeeded by way of aggressive declaration, and its success stands as a powerful illustration of the invasive character of declarative words and deeds, which aim

PART II

THE ADVANCE OF  
SURVEILLANCE  
CAPITALISM



## CHAPTER SEVEN

# THE REALITY BUSINESS

*Falling in love with Truth before he knew Her,  
He rode into imaginary lands,  
By solitude and fasting hoped to woo Her,  
And mocked at those who served Her with their hands.*

—W. H. AUDEN

*SONNETS FROM CHINA, VI*

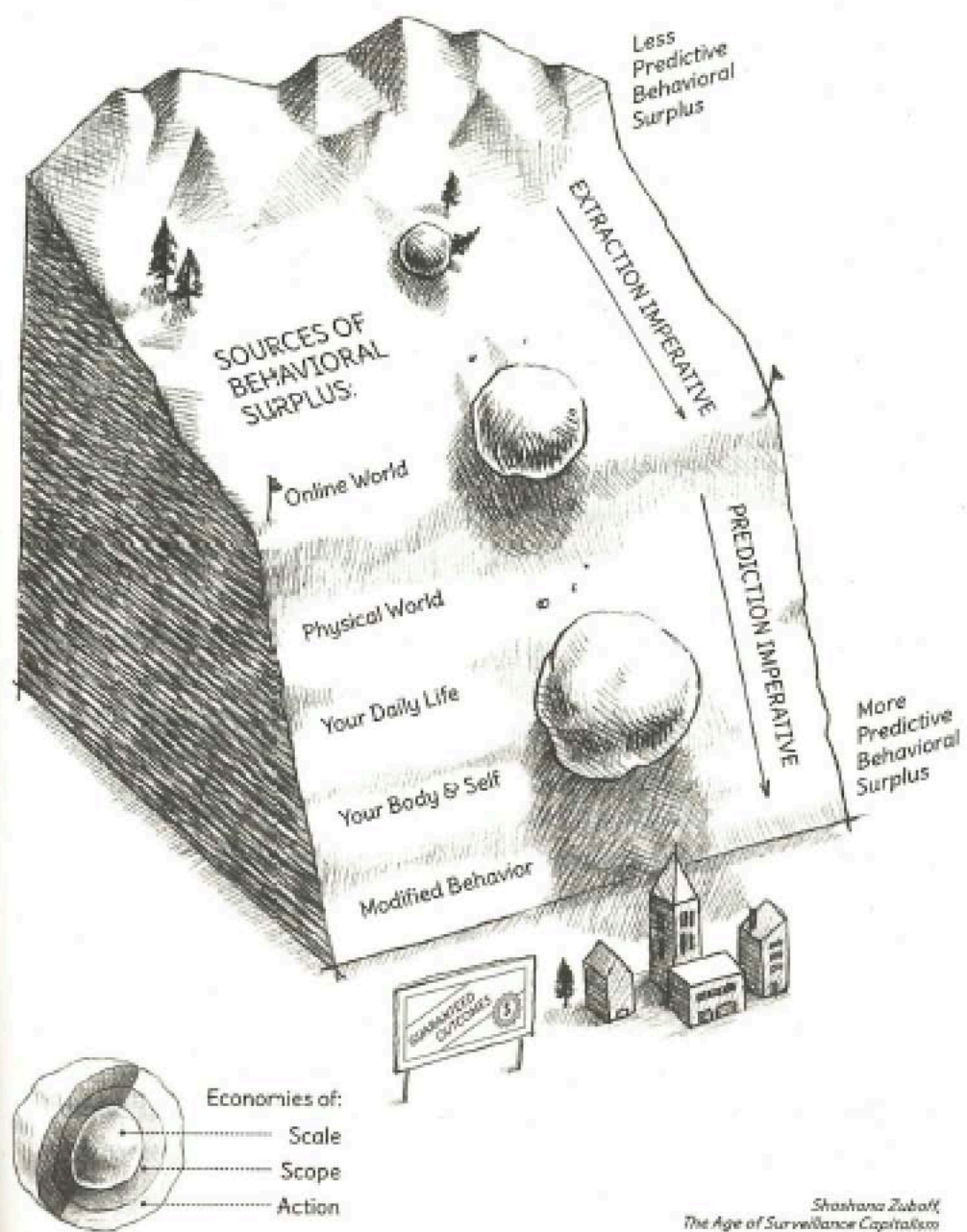
### *I. The Prediction Imperative*

There could not have been a more fitting setting for Eric Schmidt to share his opinion on the future of the web than the World Economic Forum in Davos, Switzerland. In 2015, during a session at the winter playground for neoliberals—and increasingly surveillance capitalists—Schmidt was asked for his thoughts about the future of the internet. Sitting alongside his former Google colleagues Sheryl Sandberg and Marissa Mayer, he did not hesitate to share his belief that “The internet will disappear. There will be so many IP addresses...so many devices, sensors, things that you are wearing, things that you are interacting with, that you won’t even sense it. It will be part of your presence all the time. Imagine you walk into a room and the room is dynamic.”<sup>1</sup> The audience gasped in astonishment, and shortly thereafter, headlines around the world exploded in shock at the former Google CEO’s pronouncement that the end of the internet was at hand.

Schmidt was, in fact, merely paraphrasing computer scientist Mark Weiser’s seminal 1991 article, “The Computer for the 21st Century,” which has framed Silicon Valley’s technology objectives for nearly three decades. Weiser

# The Dynamic of Behavioral Surplus Accumulation

Surveillance capitalism's master motion is the accumulation of new sources of behavioral surplus with more predictive power. The goal is predictions comparable to guaranteed outcomes in real-life behavior. Extraction begins online, but the prediction imperative increases the momentum, driving extraction toward new sources in the real world.



*Shoshana Zuboff  
The Age of Surveillance Capitalism*

Figure 3: The Dynamic of Behavioral Surplus Accumulation

## CHAPTER EIGHT

# RENDITION: FROM EXPERIENCE TO DATA

*You take a picture of 'em, they'll kill you.  
They think you're takin' somethin' away from 'em.  
That you only got so much... stuff!... and if other  
People are takin' it all, then there ain't none left for yourself.*

—ROBERT GARLAND, *THE ELECTRIC HORSEMAN*

*To photograph is to appropriate the thing photographed.  
It means putting oneself into a certain relation to the world  
that feels like knowledge—and, therefore, like power.*

—SUSAN SONTAG, *ON PHOTOGRAPHY*

### *I. Terms of Sur-Render*

We worry about companies that amass our personal data, and we wonder why they should profit. “Who owns the data?” we ask. But every discussion of data protection or data ownership omits the most important question of all: why is our experience rendered as behavioral data in the first place? It has been far too easy to overlook this important step in the chain of events that produces behavioral surplus. This chapter and the next draw our attention to the gap between experience and data, as well as to the specific operations that target this gap on a mission to transform the one into the other. I call these operations *rendition*. We have seen that the dispossession of human experience is the original sin of surveillance capitalism, but this dispossession is not mere abstraction. *Rendition* describes the concrete operational practices through

# RENDITION FROM THE DEPTHS

*I couldn't feel, so I tried to touch...*

—LEONARD COHEN  
"HALLELUJAH"

## *I. Personalization as Conquest*

Microsoft CEO Satya Nadella introduced Cortana, the corporation's "personal digital assistant," at the firm's annual Ignite conference in 2016:

This new category of the personal digital assistant is a runtime, a new interface. It can take text input. It can take speech input. It knows you deeply. It knows your context, your family, your work. It knows the world. It is unbounded. In other words, it's about you; it's not about any one device. It goes wherever you go. It's available on any phone—iOS, Android, Windows—doesn't matter. It is available across all of the applications that you will use in your life.<sup>1</sup>

This is a new frontier of behavioral surplus where the dark data continent of your inner life—your intentions and motives, meanings and needs, preferences and desires, moods and emotions, personality and disposition, truth telling or deceit—is summoned into the light for others' profit. The point is not to cure but to render all of it as immeasurably tiny bits of behavior available for calculation so that each can take its place on the assembly line that moves from raw materials to product development, manufacturing, and sales.

## MAKE THEM DANCE

*But hear the morning's injured weeping and know why:  
Ramparts and souls have fallen; the will of the unjust  
Has never lacked an engine; still all princes must  
Employ the fairly-noble unifying lie.*

—W. H. AUDEN

SONNETS FROM CHINA, XI

## I. Economies of Action

"The new power is *action*," a senior software engineer told me. "The intelligence of the internet of things means that sensors can also be *actuators*." The director of software engineering for a company that is an important player in the "internet of things" added, "It's no longer simply about ubiquitous computing. Now the real aim is ubiquitous intervention, action, and control. The real power is that now you can *modify* real-time actions in the real world. Connected smart sensors can register and analyze any kind of behavior and then actually figure out how to change it. Real-time analytics translate into real-time action." The scientists and engineers I interviewed call this new capability "actuation," and they describe it as the critical though largely undiscussed turning point in the evolution of the apparatus of ubiquity.

This actuation capability defines a new phase of the prediction imperative that emphasizes *economies of action*. This phase represents the completion of the new *means of behavior modification*, a decisive and necessary evolution of the surveillance capitalist "means of production" toward a more complex, iterative, and muscular operational system. It is a critical achievement in the race to guaranteed outcomes. Under surveillance capitalism the objectives

## CHAPTER ELEVEN

# THE RIGHT TO THE FUTURE TENSE

*But He had planned such future for this youth:  
Surely, His duty now was to compel,  
To count on time to bring true love of truth  
And, with it, gratitude. His eagle fell.*

—W. H. AUDEN

SONNETS FROM CHINA, IX

### *I. I Will to Will*

I wake early. The day begins before I open my eyes. My mind is in motion. Words and sentences have streamed through my dreams, solving problems on yesterday's pages. The first work of the day is to retrieve those words that lay open a puzzle. Only then am I ready to awaken my senses. I try to discern each birdcall in the symphony outside our windows: the phoebe, redwing, blue jay, mockingbird, woodpecker, finch, starling, and chickadee. Soaring above all their songs are the cries of geese over the lake. I splash warm water on my face, drink cool water to coax my body into alertness, and commune with our dog in the still-silent house. I make coffee and bring it into my study, where I settle into my desk chair, call up my screen, and begin. I think. I write these words, and I imagine you reading them. I do this every day of every week—as I have for several years—and it is likely that I will continue to do so for one or two years to come.

I watch the seasons from the windows above my desk: first green, then red and gold, then white, and then back to green again. When friends come

PART III

INSTRUMENTARIAN  
POWER FOR A THIRD  
MODERNITY

## TWO SPECIES OF POWER

*So an age ended, and its last deliverer died  
 In bed, grown idle and unhappy; they were safe:  
 The sudden shadow of a giant's enormous calf  
 Would fall no more at dusk across their lawns outside.*

—W. H. AUDEN

SONNETS FROM CHINA, X

## I. A Return to the Unprecedented

Under surveillance capitalism, the “means of production” serves the “means of behavioral modification.” Machine processes replace human relationships so that certainty can replace trust. This new assembly relies upon a vast digital apparatus, world-historic concentrations of advanced computational knowledge and skill, and immense wealth. The arc of behavioral modification at scale integrates the many operations that we have examined: ubiquitous extraction and rendition, actuation (tuning, herding, conditioning), behavioral surplus supply chains, machine-intelligence-based manufacturing processes, fabrication of prediction products, dynamic behavioral futures markets, and “targeting,” which leads to fresh rounds of tuning, herding, conditioning, and the coercions of the uncontract, thus renewing the cycle.

This assembly is a market project: its purpose is to fabricate predictions, which become more valuable as they approach certainty. The best predictions feed on totalities of data, and on the strength of this movement toward totality, surveillance capitalists have hijacked the division of learning in society. They command knowledge from the decisive pinnacle of the social order,



# BIG OTHER AND THE RISE OF INSTRUMENTARIAN POWER

*He was their servant (some say he was blind),  
Who moved among their faces and their things:  
Their feeling gathered in him like a wind  
And sang. They cried "It is a God that sings."*

—W. H. AUDEN

SONNETS FROM CHINA, VII

## *I. Instrumentarianism as a New Species of Power*

Surveillance capitalism is the puppet master that imposes its will through the medium of the ubiquitous digital apparatus. I now name the apparatus *Big Other*: it is the sensate, computational, connected puppet that renders, monitors, computes, and modifies human behavior. Big Other combines these functions of knowing and doing to achieve a pervasive and unprecedented *means of behavioral modification*. Surveillance capitalism's economic logic is directed through Big Other's vast capabilities to produce instrumentarian power, replacing the engineering of souls with the engineering of behavior.

Instrumentarian power cultivates an unusual "way of knowing" that combines the "formal indifference" of the neoliberal worldview with the observational perspective of radical behaviorism (see Figure 4 on pages 396–397). Thanks to Big Other's capabilities, instrumentarian power reduces human experience to measurable observable behavior while remaining steadfastly

# TWO SPECIES OF POWER

Comparative Elements	Totalitarianism	Instrumentarianism
Central Metaphor	Big Brother	Big Other
Totalistic Vision	Total Possession	Total Certainty
Transcendent Purpose	Perfection of Society/Species Defined by Class or Race	Automation of Market/Society for the Certainty of Guaranteed Outcomes
Locus of Power	Control of the Means of Violence	Control of the Division of Learning in Society
Means of Power	Hierarchical Administration of Terror	Ownership of the Means of Behavioral Modification
Foundational Mechanisms	Arbitrary Terror; Murder	Dispossession of Behavioral Surplus for Computation, Control, Prediction
Theory and Practice	Theory Legitimizes Practice	Practice Conceals Theory

Shoshana Zuboff, *The Age of Surveillance Capitalism*

Figure 4: Two Species of Power

Comparative Elements	Totalitarianism	Instrumentarianism
<b>Ideological Style</b>	Political Religion	Radical Indifference
<b>Social Strategies</b>	Atomization and Division; Total Believers or Total Enemies	Otherization of Predictable Organisms
<b>Core Social Processes</b>	In-Group, Out-Group for Conformity and Obedience	Hive Mind; Social Comparison for Confluence and Predictability
<b>Unit of Social Production</b>	Mass (Political)	Population (Statistical)
<b>Vector of Social Influence</b>	"Re-Education" Exerts Control from Inside-Out	Behavioral Modification Exerts Control from Outside-In
<b>Social Patterning</b>	Radical Isolation	Radical Connection
<b>Demands on Individual</b>	Absolute Loyalty through Subjugation to State/Species	Absolute Transparency through Subjugation to Guaranteed Outcomes
<b>Primary Source of Individual Attachment to Power</b>	Thwarted Identity	Thwarted Effectiveness
<b>Primary Mode of Individual Attachment to Power</b>	Identification	Dependency

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Figure 4: Two Species of Power

## A UTOPIA OF CERTAINTY

*So from the years their gifts were showered: each  
 Grabbed at the one it needed to survive;  
 Bee took the politics that suit a hive,  
 Trout finned as trout, peach molded into peach,  
 And were successful at their first endeavor.*

—W. H. AUDEN

SONNETS FROM CHINA, I

## I. Society as the Other-One

Although he did not name it, the visionary of ubiquitous computing, Mark Weiser, foresaw the immensity of instrumentarian power as a totalizing societal project. He did so in a way that suggests both its utter lack of precedent and the danger of confounding it with what has gone before: "hundreds of computers in every room, all capable of sensing people near them and linked by high-speed networks have the potential to make totalitarianism up to now seem like sheerest anarchy."<sup>1</sup> In fact, all those computers are not the means to a digital hyper-totalitarianism. They are, as I think Weiser sensed, the foundation of an unprecedented power that can reshape society in unprecedented ways. If instrumentarian power can make totalitarianism look like anarchy, then what might it have in store for us?

Seven decades ago, Skinner's proto-instrumentarian behavioral utopia, *Walden Two*, was met with revulsion. Today the real thing is inspirational fodder for surveillance capitalist rhetoric as leaders promote the tools and visions that will bring the old professor's ideas to life... to *our lives*. The processes of normalization and habituation have begun. We

## THE INSTRUMENTARIAN COLLECTIVE

*So an age ended, and its last deliverer died  
In bed, grown idle and unhappy; they were safe:  
The sudden shadow of a giant's enormous calf  
Would fall no more at dusk across their lawns outside.*

—W. H. AUDEN

SONNETS FROM CHINA, X

### *I. The Priests of Instrumentarian Power*

Applied utopianist executives such as Page, Nadella, and Zuckerberg do not say much about their theories. At best the information we have is episodic and shallow. But a cadre of data scientists and “computational social scientists” has leapt into this void with detailed experimental and theoretical accounts of the gathering momentum of instrumentarian power, providing invaluable insight into the social principles of an instrumentarian society.

One outstanding example is the work of Alex Pentland, the director of the Human Dynamics Lab within MIT’s Media Lab. Pentland is the rare applied utopianist who, in collaboration with his students and collaborators, has vigorously articulated, researched, and disseminated a theory of instrumentarian society in parallel to his prolific technical innovations and practical applications. The studies that this group has produced are a contemporary signal of an increasingly taken-for-granted worldview among data scientists whose computational theories and innovations exist in dynamic interaction with the progress of surveillance capitalism, as in the case of Picard’s affective

## OF LIFE IN THE HIVE

*All grew so fast his life was overgrown,  
Till he forgot what all had once been made for:  
He gathered into crowds but was alone...*

—W. H. AUDEN

SONNETS FROM CHINA, VIII

## I. Our Canaries in the Coal Mine

"I felt so lonely...I could not sleep well without sharing or connecting to others," a Chinese girl recalled. "Emptiness," an Argentine boy moaned. "Emptiness overwhelms me." A Ugandan teenager muttered, "I felt like there was a problem with me," and an American college student whimpered, "I went into absolute panic mode." These are but a few of the lamentations plucked from one thousand student participants in an international study of media use that spanned ten countries and five continents. They had been asked to abstain from all digital media for a mere twenty-four hours, and the experience released a planet-wide gnashing of teeth and tearing of flesh that even the study's directors found disquieting.<sup>1</sup> Capping the collective *cri de coeur*, a Slovakian university student reflected, "Maybe it is unhealthy that I can't be without knowing what people are saying and feeling, where they are, and what's happening."

The students' accounts are a message in a bottle for the rest of us, narrating the mental and emotional milieu of life in an instrumentarian society with its architectures of behavioral control, social pressure, and asymmetrical power. Most significantly, our children are harbingers of the emotional toll of the viewpoint of the Other-One as young people find themselves immersed in a hive life, where the other is an "it" to me, and I experience myself as the

## THE RIGHT TO SANCTUARY

*Refuge and prospect are opposites: refuge is small and dark;  
prospect is expansive and bright. . . . We need them both  
and we need them together.*

—GRANT HILDEBRAND

“FINDING A GOOD HOME”

ORIGINS OF ARCHITECTURAL PLEASURE

### *I. Big Other Outruns Society*

That summer night when our home was destroyed by a lightning strike, we watched in the driving rain as the gables and rambling porches exploded in fire. Within hours a smoldering field of black ash covered the ground where home had been. In the months and years that followed, my recollections of the house took an unexpected shape, less rooms and objects than shadow, light, and fragrance. I conjured in perfect clarity the rush of my mother's scent when I opened the drawer filled with her once-cherished scarves. I closed my eyes and saw the late-afternoon sun slicing through the velvety air by the bedroom fireplace with its ancient sloping mantle where our treasures were on display: a photo of my father and me, heads tilted toward each other, blending our two shocks of curly black hair; the miniature painted enamel boxes, discovered in a Parisian flea market years before the thought of motherhood, which later became the shelter for our children's milk teeth huddled like secret caches of seed pearls. It was impossible to explain the quality of this sadness and longing: how our selves and the life of our family had evolved symbiotically with those spaces that we called home. How our



## A COUP FROM ABOVE

*He shook with hate for things he'd never seen,  
Pined for a love abstracted from its object,  
And was oppressed as he had never been.*

—W. H. AUDEN

SONNETS FROM CHINA, III

Surveillance capitalism departs from the history of market capitalism in three startling ways. First, it insists on the privilege of unfettered freedom *and* knowledge. Second, it abandons long-standing organic reciprocities with people. Third, the specter of life in the hive betrays a collectivist societal vision sustained by radical indifference and its material expression in Big Other. In this chapter we explore each of these departures from historical norms and then face the question that they raise: is surveillance capitalism merely “capitalism”?

## I. Freedom and Knowledge

Surveillance capitalists are no different from other capitalists in demanding freedom from any sort of constraint. They insist upon the “freedom to” launch every novel practice while aggressively asserting the necessity of their “freedom from” law and regulation. This classic pattern reflects two bedrock assumptions about capitalism made by its own theorists: The first is that markets are intrinsically *unknowable*. The second is that the ignorance produced by this lack of knowledge requires wide-ranging *freedom* of action for market actors.

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