"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 AGE OF SURVEILLANCE CAPITALISM

The Fight for a Human Future at the New Frontier of Power

SHOSHANA ZUBOFF

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This book is dedicated to the past and the future:
In memory of my Beloved, Jim Maxmin.
In memory of my courageous friend, Frank Schirrmacher.
In honor of my children,
Chloe Sophia Maxmin and Jacob Raphael Maxmin—
I write to fortify your futures and
the moral cause of your generation.

Chilled by the Present, its gloom and its noise,
On waking we sigh for an ancient South,
A warm nude age of instinctive poise,
A taste of joy in an innocent mouth.

At night in our huts we dream of a part
In the balls of the Future: each ritual maze
Has a musical plan, and a musical heart
Can faultlessly follow its faultless ways.

We envy streams and houses that are sure,
But, doubtful, articled to error, we
Were never nude and calm as a great door,

And never will be faultless like our fountains:
We live in freedom by necessity,
A mountain people dwelling among mountains.

—W. H. AUDEN
SONNETS FROM CHINA, XVIII

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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INTRODUCTION

CHAPTER ONE

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*

and Power. That work turned out to be the opening chapter in what became a lifelong quest to answer the question "Can the digital future be our home?"

It has been many years since that warm southern evening, but the oldest questions have come roaring back with a vengeance. The digital realm is overtaking and redefining everything familiar even before we have had a chance to ponder and decide. We celebrate the networked world for the many ways in which it enriches our capabilities and prospects, but it has birthed whole new territories of anxiety, danger, and violence as the sense of a predictable future slips away.

When we ask the oldest questions now, billions of people from every social strata, generation, and society must answer. Information and communications technologies are more widespread than electricity, reaching three billion of the world's seven billion people.[1] The entangled dilemmas of knowledge, authority, and power are no longer confined to workplaces as they were in the 1980s. Now their roots run deep through the necessities of daily life, mediating nearly every form of social participation.[2]

Just a moment ago, it still seemed reasonable to focus our concerns on the challenges of an information workplace or an information society. Now the oldest questions must be addressed to the widest possible frame, which is best defined as "civilization" or, more specifically, *information civilization.* Will this emerging civilization be a place that we can call home?

All creatures orient to home. It is the point of origin from which every species sets its bearings. Without our bearings, there is no way to navigate unknown territory; without our bearings, we are lost. I am reminded of this each spring when the same pair of loons returns from their distant travels to the cove below our window. Their haunting cries of homecoming, renewal, connection, and safeguard lull us to sleep at night, knowing that we too are in our place. Green turtles hatch and go down to the sea, where they travel many thousands of miles, sometimes for ten years or twenty. When ready to lay their eggs, they retrace their journey back to the very patch of beach where they were born. Some birds annually fly for thousands of miles, losing as much as half their body weight, in order to mate in their birthplace. Birds, bees, butterflies... nests, holes, trees, lakes, hives, hills, shores, and hollows... nearly every creature shares some version of this deep attachment to a place in which life has been known to flourish, the kind of place we call *home.*

It is in the nature of human attachment that every journey and expulsion sets into motion the search for home. That *nostos,* finding home, is among our most profound needs is evident by the price we are willing to pay for it. There is a universally shared ache to return to the place we left behind or to found a new home in which our hopes for the future can nest and grow. We still recount the travails of Odysseus and recall what human beings will endure for the sake of reaching our own shores and entering our own gates.

Because our brains are larger than those of birds and sea turtles, we know that it is not always possible, or even desirable, to return to the same patch of earth. Home need not always correspond to a single dwelling or place. We can choose its form and location but not its meaning. Home is where we know and where we are known, where we love and are beloved. Home is mastery, voice, relationship, and sanctuary: part freedom, part flourishing... part refuge, part prospect.

The sense of home slipping away provokes an unbearable yearning. The Portuguese have a name for this feeling: *saudade,* a word said to capture the homesickness and longing of separation from the homeland among emigrants across the centuries. Now the disruptions of the twenty-first century have turned these exquisite anxieties and longings of dislocation into a universal story that engulfs each one of us.[3]

II. Requiem for a Home

In 2000 a group of computer scientists and engineers at Georgia Tech collaborated on a project called the "Aware Home."[4] It was meant to be a "living laboratory" for the study of "ubiquitous computing." They imagined a "human-home symbiosis" in which many animate and inanimate processes would be captured by an elaborate network of "context aware sensors" embedded in the house and by wearable computers worn by the home's occupants. The design called for an "automated wireless collaboration" between the platform that hosted personal information from the occupants' wearables and a second one that hosted the environmental information from the sensors.

There were three working assumptions: first, the scientists and engineers understood that the new data systems would produce an entirely new knowledge domain. Second, it was assumed that the rights to that new knowledge and the power to use it to improve one's life would belong exclusively to the people who live in the house. Third, the team assumed that for all of its digital wizardry, the Aware Home would take its place as a modern incarnation of the ancient conventions that understand "home" as the private sanctuary of those who dwell within its walls.

All of this was expressed in the engineering plan. It emphasized trust, simplicity, the sovereignty of the individual, and the inviolability of the home as a private domain. The Aware Home information system was imagined as a simple "closed loop" with only two nodes and controlled entirely by the home's occupants. Because the house would be "constantly monitoring the occupants' whereabouts and activities…even tracing its inhabitants' medical conditions," the team concluded, "there is a clear need to give the occupants knowledge and control of the distribution of this information." All the information was to be stored on the occupants' wearable computers "to insure the privacy of an individual's information."

By 2018, the global "smart-home" market was valued at $36 billion and expected to reach $151 billion by 2023.[5] The numbers betray an earthquake beneath their surface. Consider just one smart-home device: the Nest thermostat, which was made by a company that was owned by Alphabet, the Google holding company, and then merged with Google in 2018.[6] The Nest thermostat does many things imagined in the Aware Home. It collects data about its uses and environment. It uses motion sensors and computation to "learn" the behaviors of a home's inhabitants. Nest's apps can gather data from other connected products such as cars, ovens, fitness trackers, and beds.[7] Such systems can, for example, trigger lights if an anomalous motion is detected, signal video and audio recording, and even send notifications to homeowners or others. As a result of the merger with Google, the thermostat, like other Nest products, will be built with Google's artificial intelligence capabilities, including its personal digital "assistant."[8] Like the Aware Home, the thermostat and its brethren devices create immense new stores of knowledge and therefore new power—but for whom?

Wi-Fi–enabled and networked, the thermostat's intricate, personalized data stores are uploaded to Google's servers. Each thermostat comes with a "privacy policy," a "terms-of-service agreement," and an "end-user licensing agreement." These reveal oppressive privacy and security consequences in which sensitive household and personal information are shared with other smart devices, unnamed personnel, and third parties for the purposes of predictive analyses and sales to other unspecified parties. Nest takes little responsibility for the security of the information it collects and none for how the other companies in its ecosystem will put those data to use.[9] A detailed analysis of Nest's policies by two University of London scholars concluded that were one to enter into the Nest ecosystem of connected devices and apps, each with their own equally burdensome and audacious terms, the purchase of a single home thermostat would entail the need to review nearly a thousand so-called contracts.[10]

Should the customer refuse to agree to Nest's stipulations, the terms of service indicate that the functionality and security of the thermostat will be deeply compromised, no longer supported by the necessary updates meant to ensure its reliability and safety. The consequences can range from frozen pipes to failed smoke alarms to an easily hacked internal home system.[11]

By 2018, the assumptions of the Aware Home were gone with the wind. Where did they go? What was that wind? The Aware Home, like many other visionary projects, imagined a digital future that empowers individuals to lead more-effective lives. What is most critical is that in the year 2000 this vision naturally assumed an unwavering commitment to the privacy of individual experience. Should an individual choose to render her experience digitally, then she would exercise exclusive rights to the knowledge garnered from such data, as well as exclusive rights to decide how such knowledge might be put to use. Today these rights to privacy, knowledge, and application have been usurped by a bold market venture powered by unilateral claims to others' experience and the knowledge that flows from it. What does this sea change mean for us, for our children, for our democracies, and for the very possibility of a human future in a digital world? This book aims to answer these questions. It is about the darkening of the digital dream and its rapid mutation into a voracious and utterly novel commercial project that I call *surveillance capitalism*.

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

play in its behavioral futures markets to the ruthless expropriation of surplus from Facebook profiles for the purposes of shaping individual behavior, whether it's buying pimple cream at 5:45 P.M. on Friday, clicking "yes" on an offer of new running shoes as the endorphins race through your brain after your long Sunday morning run, or voting next week. Just as industrial capitalism was driven to the continuous intensification of the means of production, so surveillance capitalists and their market players are now locked into the continuous intensification of the means of behavioral modification and the gathering might of instrumentarian power.

Surveillance capitalism runs contrary to the early digital dream, consigning the Aware Home to ancient history. Instead, it strips away the illusion that the networked form has some kind of indigenous moral content, that being "connected" is somehow intrinsically pro-social, innately inclusive, or naturally tending toward the democratization of knowledge. Digital connection is now a means to others' commercial ends. At its core, surveillance capitalism is parasitic and self-referential. It revives Karl Marx's old image of capitalism as a vampire that feeds on labor, but with an unexpected turn. Instead of labor, surveillance capitalism feeds on every aspect of every human's experience.

Google invented and perfected surveillance capitalism in much the same way that a century ago General Motors invented and perfected managerial capitalism. Google was the pioneer of surveillance capitalism in thought and practice, the deep pocket for research and development, and the trailblazer in experimentation and implementation, but it is no longer the only actor on this path. Surveillance capitalism quickly spread to Facebook and later to Microsoft. Evidence suggests that Amazon has veered in this direction, and it is a constant challenge to Apple, both as an external threat and as a source of internal debate and conflict.

As the pioneer of surveillance capitalism, Google launched an unprecedented market operation into the unmapped spaces of the internet, where it faced few impediments from law or competitors, like an invasive species in a landscape free of natural predators. Its leaders drove the systemic coherence of their businesses at a breakneck pace that neither public institutions nor individuals could follow. Google also benefited from historical events when a national security apparatus galvanized by the attacks of 9/11 was inclined to

nurture, mimic, shelter, and appropriate surveillance capitalism's emergent capabilities for the sake of total knowledge and its promise of certainty.

Surveillance capitalists quickly realized that they could do anything they wanted, and they did. They dressed in the fashions of advocacy and emancipation, appealing to and exploiting contemporary anxieties, while the real action was hidden offstage. Theirs was an invisibility cloak woven in equal measure to the rhetoric of the empowering web, the ability to move swiftly, the confidence of vast revenue streams, and the wild, undefended nature of the territory they would conquer and claim. They were protected by the inherent illegibility of the automated processes that they rule, the ignorance that these processes breed, and the sense of inevitability that they foster.

Surveillance capitalism is no longer confined to the competitive dramas of the large internet companies, where behavioral futures markets were first aimed at online advertising. Its mechanisms and economic imperatives have become the default model for most internet-based businesses. Eventually, competitive pressure drove expansion into the offline world, where the same foundational mechanisms that expropriate your online browsing, likes, and clicks are trained on your run in the park, breakfast conversation, or hunt for a parking space. Today's prediction products are traded in behavioral futures markets that extend beyond targeted online ads to many other sectors, including insurance, retail, finance, and an ever-widening range of goods and services companies determined to participate in these new and profitable markets. Whether it's a "smart" home device, what the insurance companies call "behavioral underwriting," or any one of thousands of other transactions, we now pay for our own domination.

Surveillance capitalism's products and services are not the objects of a value exchange. They do not establish constructive producer-consumer reciprocities. Instead, they are the "hooks" that lure users into their extractive operations in which our personal experiences are scraped and packaged as the means to others' ends. We are not surveillance capitalism's "customers." Although the saying tells us "If it's free, then you are the product," that is also incorrect. We are the sources of surveillance capitalism's crucial surplus: the objects of a technologically advanced and increasingly inescapable raw-material-extraction operation. Surveillance capitalism's actual customers are the enterprises that trade in its markets for future behavior.

This logic turns ordinary life into the daily renewal of a twenty-first-century Faustian compact. "Faustian" because it is nearly impossible to tear ourselves away, despite the fact that what we must give in return will destroy life as we have known it. Consider that the internet has become essential for social participation, that the internet is now saturated with commerce, and that commerce is now subordinated to surveillance capitalism. Our dependency is at the heart of the commercial surveillance project, in which our felt needs for effective life vie against the inclination to resist its bold incursions. This conflict produces a psychic numbing that inures us to the realities of being tracked, parsed, mined, and modified. It disposes us to rationalize the situation in resigned cynicism, create excuses that operate like defense mechanisms ("I have nothing to hide"), or find other ways to stick our heads in the sand, choosing ignorance out of frustration and helplessness.[12] In this way, surveillance capitalism imposes a fundamentally illegitimate choice that twenty-first-century individuals should not have to make, and its normalization leaves us singing in our chains.[13]

Surveillance capitalism operates through unprecedented asymmetries in knowledge and the power that accrues to knowledge. Surveillance capitalists know everything *about us,* whereas their operations are designed to be unknowable *to us.* They accumulate vast domains of new knowledge *from us,* but not *for us.* They predict our futures for the sake of others' gain, not ours. As long as surveillance capitalism and its behavioral futures markets are allowed to thrive, ownership of the new means of behavioral modification eclipses ownership of the means of production as the fountainhead of capitalist wealth and power in the twenty-first century.

These facts and their consequences for our individual lives, our societies, our democracies, and our emerging information civilization are examined in detail in the coming chapters. The evidence and reasoning employed here suggest that surveillance capitalism is a rogue force driven by novel economic imperatives that disregard social norms and nullify the elemental rights associated with individual autonomy that are essential to the very possibility of a democratic society.

Just as industrial civilization flourished at the expense of nature and now threatens to cost us the Earth, an information civilization shaped by surveillance capitalism and its new instrumentarian power will thrive at the expense

of human nature and will threaten to cost us our humanity. The industrial legacy of climate chaos fills us with dismay, remorse, and fear. As surveillance capitalism becomes the dominant form of information capitalism in our time, what fresh legacy of damage and regret will be mourned by future generations? By the time you read these words, the reach of this new form will have grown as more sectors, firms, startups, app developers, and investors mobilize around this one plausible version of information capitalism. This mobilization and the resistance it engenders will define a key battleground upon which the possibility of a human future at the new frontier of power will be contested.

IV. The Unprecedented

One explanation for surveillance capitalism's many triumphs floats above them all: it is *unprecedented*. The unprecedented is necessarily unrecognizable. When we encounter something unprecedented, we automatically interpret it through the lenses of familiar categories, thereby rendering invisible precisely that which is unprecedented. A classic example is the notion of the "horseless carriage" to which people reverted when confronted with the unprecedented facts of the automobile. A tragic illustration is the encounter between indigenous people and the first Spanish conquerors. When the Taínos of the pre-Columbian Caribbean islands first laid eyes on the sweating, bearded Spanish soldiers trudging across the sand in their brocade and armor, how could they possibly have recognized the meaning and portent of that moment? Unable to imagine their own destruction, they reckoned that those strange creatures were gods and welcomed them with intricate rituals of hospitality. This is how the unprecedented reliably confounds understanding; existing lenses illuminate the familiar, thus obscuring the original by turning the unprecedented into an extension of the past. This contributes to the normalization of the abnormal, which makes fighting the unprecedented even more of an uphill climb.

On a stormy night some years ago, our home was struck by lightning, and I learned a powerful lesson in the comprehension-defying power of the unprecedented. Within moments of the strike, thick black smoke drifted up the staircase from the lower level of the house and toward the living room. As we mobilized and called the fire department, I believed that I had just a minute or two to do something useful before rushing out to join my family. First, I ran upstairs and closed all the bedroom doors to protect them from smoke damage. Next, I tore back downstairs to the living room, where I gathered up as many of our family photo albums as I could carry and set them outside on a covered porch for safety. The smoke was just about to reach me when the fire marshal arrived to grab me by the shoulder and yank me out the door. We stood in the driving rain, where, to our astonishment, we watched the house explode in flames.

I learned many things from the fire, but among the most important was the unrecognizability of the unprecedented. In that early phase of crisis, I could imagine our home scarred by smoke damage, but I could not imagine its disappearance. I grasped what was happening through the lens of past experience, envisioning a distressing but ultimately manageable detour that would lead back to the status quo. Unable to distinguish the unprecedented, all I could do was to close doors to rooms that would no longer exist and seek safety on a porch that was fated to vanish. I was blind to conditions that were unprecedented in my experience.

I began to study the emergence of what I would eventually call surveillance capitalism in 2006, interviewing entrepreneurs and staff in a range of tech companies in the US and the UK. For several years I thought that the unexpected and disturbing practices that I documented were detours from the main road: management oversights or failures of judgment and contextual understanding.

My field data were destroyed in the fire that night, and by the time I picked up the thread again early in 2011, it was clear to me that my old horseless-carriage lenses could not explain or excuse what was taking shape. I had lost many details hidden in the brush, but the profiles of the trees stood out more clearly than before: information capitalism had taken a decisive turn toward a new logic of accumulation, with its own original operational mechanisms, economic imperatives, and markets. I could see that this new form had broken away from the norms and practices that define the history of capitalism and in that process something startling and unprecedented had emerged.

Of course, the emergence of the unprecedented in economic history cannot be compared to a house fire. The portents of a catastrophic fire were

unprecedented in my experience, but they were not original. In contrast, surveillance capitalism is a new actor in history, both original and sui generis. It is of its own kind and unlike anything else: a distinct new planet with its own physics of time and space, its sixty-seven-hour days, emerald sky, inverted mountain ranges, and dry water.

Nonetheless, the danger of closing doors to rooms that will no longer exist is very real. The unprecedented nature of surveillance capitalism has enabled it to elude systematic contest because it cannot be adequately grasped with our existing concepts. We rely on categories such as "monopoly" or "privacy" to contest surveillance capitalist practices. And although these issues are vital, and even when surveillance capitalist operations are also monopolistic and a threat to privacy, the existing categories nevertheless fall short in identifying and contesting the most crucial and unprecedented facts of this new regime.

Will surveillance capitalism continue on its current trajectory to become the dominant logic of accumulation of our age, or, in the fullness of time, will we judge it to have been a toothed bird: A fearsome but ultimately doomed dead end in capitalism's longer journey? If it is to be doomed, then what will make it so? What will an effective vaccine entail?

Every vaccine begins in careful knowledge of the enemy disease. This book is a journey to encounter what is strange, original, and even unimaginable in surveillance capitalism. It is animated by the conviction that fresh observation, analysis, and new naming are required if we are to grasp the unprecedented as a necessary prelude to effective contest. The chapters that follow will examine the specific conditions that allowed surveillance capitalism to root and flourish as well as the "laws of motion" that drive the action and expansion of this market form: its foundational mechanisms, economic imperatives, economies of supply, construction of power, and principles of social ordering. Let's close doors, but let's make sure that they are the right ones.

V. The Puppet Master, Not the Puppet

Our effort to confront the unprecedented begins with the recognition that *we hunt the puppet master, not the puppet.* A first challenge to comprehension

is the confusion between surveillance capitalism and the technologies it employs. Surveillance capitalism is not technology; it is a logic that imbues technology and commands it into action. Surveillance capitalism is a market form that is unimaginable outside the digital milieu, but it is not the same as the "digital." As we saw in the story of the Aware Home, and as we shall see again in Chapter 2, the digital can take many forms depending upon the social and economic logics that bring it to life. It is capitalism that assigns the price tag of subjugation and helplessness, not the technology.

That surveillance capitalism is a logic in action and not a technology is a vital point because surveillance capitalists want us to think that their practices are inevitable expressions of the technologies they employ. For example, in 2009 the public first became aware that Google maintains our search histories indefinitely: data that are available as raw-material supplies are also available to intelligence and law-enforcement agencies. When questioned about these practices, the corporation's former CEO Eric Schmidt mused, "The reality is that search engines including Google do retain this information for some time."[14]

In truth, search engines do not retain, but surveillance capitalism does. Schmidt's statement is a classic of misdirection that bewilders the public by conflating commercial imperatives and technological necessity. It camouflages the concrete practices of surveillance capitalism and the specific choices that impel Google's brand of search into action. Most significantly, it makes surveillance capitalism's practices appear to be inevitable when they are actually meticulously calculated and lavishly funded means to self-dealing commercial ends. We will examine this notion of "inevitabilism" in depth in Chapter 7. For now, suffice to say that despite all the futuristic sophistication of digital innovation, the message of the surveillance capitalist companies barely differs from the themes once glorified in the motto of the 1933 Chicago World's Fair: "Science Finds—Industry Applies—Man Conforms."

In order to challenge such claims of technological inevitability, we must establish our bearings. We cannot evaluate the current trajectory of information civilization without a clear appreciation that technology is not and never can be a thing in itself, isolated from economics and society. This means that technological inevitability does not exist. Technologies are always economic means, not ends in themselves: in modern times, technology's DNA comes

already patterned by what the sociologist Max Weber called the "economic orientation."

Economic ends, Weber observed, are always intrinsic to technology's development and deployment. "Economic action" determines objectives, whereas technology provides "appropriate *means*." In Weber's framing, "The fact that what is called the technological development of modern times has been so largely oriented economically to profit-making is one of the fundamental facts of the history of technology."[15] In a modern capitalist society, technology was, is, and always will be an expression of the economic objectives that direct it into action. A worthwhile exercise would be to delete the word "technology" from our vocabularies in order to see how quickly capitalism's objectives are exposed.

Surveillance capitalism employs many technologies, but it cannot be equated with any technology. Its operations may employ platforms, but these operations are not the same as platforms. It employs machine intelligence, but it cannot be reduced to those machines. It produces and relies on algorithms, but it is not the same as algorithms. Surveillance capitalism's unique economic imperatives are the puppet masters that hide behind the curtain orienting the machines and summoning them to action. These imperatives, to indulge another metaphor, are like the body's soft tissues that cannot be seen in an X-ray but do the real work of binding muscle and bone. We are not alone in falling prey to the technology illusion. It is an enduring theme of social thought, as old as the Trojan horse. Despite this, each generation stumbles into the quicksand of forgetting that technology is an expression of other interests. In modern times this means the interests of capital, and in our time it is surveillance capital that commands the digital milieu and directs our trajectory toward the future. Our aim in this book is to discern the laws of surveillance capitalism that animate today's exotic Trojan horses, returning us to age-old questions as they bear down on our lives, our societies, and our civilization.

We have stood at this kind of precipice before. "We've stumbled along for a while, trying to run a new civilization in old ways, but we've got to start to make this world over." It was 1912 when Thomas Edison laid out his vision for a new industrial civilization in a letter to Henry Ford. Edison worried that industrialism's potential to serve the progress of humanity would be thwarted

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 2 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

early development of what would become its foundational mechanisms, economic imperatives, and "laws of motion." For all of Google's technological prowess and computational talent, the real credit for its success goes to the radical social relations that the company declared as facts, beginning with its disregard for the boundaries of private human experience and the moral integrity of the autonomous individual. Instead, surveillance capitalists asserted their right to invade at will, usurping individual decision rights in favor of unilateral surveillance and the self-authorized extraction of human experience for others' profit. These invasive claims were nurtured by the absence of law to impede their progress, the mutuality of interests between the fledgling surveillance capitalists and state intelligence agencies, and the tenacity with which the corporation defended its new territories. Eventually, Google codified a tactical playbook on the strength of which its surveillance capitalist operations were successfully institutionalized as the dominant form of information capitalism, drawing new competitors eager to participate in the race for surveillance revenues. On the strength of these achievements, Google and its expanding universe of competitors enjoy extraordinary new asymmetries of knowledge and power, unprecedented in the human story. I argue that the significance of these developments is best understood as the privatization of the *division of learning in society,* the critical axis of social order in the twenty-first century.

Part II traces the migration of surveillance capitalism from the online environment to the real world, a consequence of the competition for prediction products that approximate certainty. Here we explore this new *reality business,* as all aspects of human experience are claimed as raw-material supplies and targeted for rendering into behavioral data. Much of this new work is accomplished under the banner of "personalization," a camouflage for aggressive extraction operations that mine the intimate depths of everyday life. As competition intensifies, surveillance capitalists learn that extracting human experience is not enough. The most-predictive raw-material supplies come from intervening in our experience to shape our behavior in ways that favor surveillance capitalists' commercial outcomes. New automated protocols are designed to influence and modify human behavior at scale as the means of production is subordinated to a new and more complex *means of behavior modification.* We see these new protocols at work in Facebook's contagion

experiments and the Google-incubated augmented reality "game" Pokémon Go. The evidence of our psychic numbing is that only a few decades ago US society denounced mass behavior-modification techniques as unacceptable threats to individual autonomy and the democratic order. Today the same practices meet little resistance or even discussion as they are routinely and pervasively deployed in the march toward surveillance revenues. Finally, I consider surveillance capitalism's operations as a challenge to the elemental *right to the future tense,* which accounts for the individual's ability to imagine, intend, promise, and construct a future. It is an essential condition of free will and, more poignantly, of the inner resources from which we draw *the will to will.* I ask and answer the question *How did they get away with it?* Part II ends with a meditation on our once and future history. *If industrial capitalism dangerously disrupted nature, what havoc might surveillance capitalism wreak on human nature?*

Part III examines the rise of instrumentarian power; its expression in a ubiquitous sensate, networked, computational infrastructure that I call *Big Other;* and the novel and deeply antidemocratic vision of society and social relations that these produce. I argue that instrumentarianism is an unprecedented species of power that has defied comprehension in part because it has been subjected to the "horseless-carriage" syndrome. Instrumentarian power has been viewed through the old lenses of totalitarianism, obscuring what is different and dangerous. Totalitarianism was a transformation of the state into a project of total possession. Instrumentarianism and its materialization in Big Other signal the transformation of the market into a project of total certainty, an undertaking that is unimaginable outside the digital milieu and the logic of surveillance capitalism. In naming and analyzing instrumentarian power, I explore its intellectual origins in early theoretical physics and its later expression in the work of the radical behaviorist B. F. Skinner.

Part III follows surveillance capitalism into a second phase change. The first was the migration from the virtual to the real world. The second is a shift of focus from the real world to the social world, as society itself becomes the new object of extraction and control. Just as industrial society was imagined as a well-functioning machine, instrumentarian society is imagined as a human simulation of machine learning systems: a confluent hive mind in which each element learns and operates in concert with every other element. In the

model of machine confluence, the "freedom" of each individual machine is subordinated to the knowledge of the system as a whole. Instrumentarian power aims to organize, herd, and tune society to achieve a similar *social confluence,* in which group pressure and computational certainty replace politics and democracy, extinguishing the felt reality and social function of an individualized existence. The youngest members of our societies already experience many of these destructive dynamics in their attachment to social media, the first global experiment in the human hive. I consider the implications of these developments for a second elemental right: *the right to sanctuary.* The human need for a space of inviolable refuge has persisted in civilized societies from ancient times but is now under attack as surveillance capital creates a world of "no exit" with profound implications for the human future at this new frontier of power.

In the final chapter I conclude that surveillance capitalism departs from the history of market capitalism in surprising ways, demanding both unimpeded freedom *and* total knowledge, abandoning capitalism's reciprocities with people and society, and imposing a totalizing collectivist vision of life in the hive, with surveillance capitalists and their data priesthood in charge of oversight and control. Surveillance capitalism and its rapidly accumulating instrumentarian power exceed the historical norms of capitalist ambitions, claiming dominion over human, societal, and political territories that range far beyond the conventional institutional terrain of the private firm or the market. As a result, surveillance capitalism is best described as a *coup from above,* not an overthrow of the state but rather an overthrow of the people's sovereignty and a prominent force in the perilous drift toward democratic deconsolidation that now threatens Western liberal democracies. Only "we the people" can reverse this course, first by naming the unprecedented, then by mobilizing new forms of collaborative action: the crucial friction that reasserts the primacy of a flourishing human future as the foundation of our information civilization. *If the digital future is to be our home, then it is we who must make it so.*

My methods combine those of a social scientist inclined toward theory, history, philosophy, and qualitative research with those of an essayist: an unusual but intentional approach. As an essayist, I occasionally draw upon my own experiences. I do this because the tendency toward psychic numbing is

increased when we regard the critical issues examined here as just so many abstractions attached to technological and economic forces beyond our reach. We cannot fully reckon with the gravity of surveillance capitalism and its consequences unless we can trace the scars they carve into the flesh of our daily lives.

As a social scientist, I have been drawn to earlier theorists who encountered the unprecedented in their time. Reading from this perspective, I developed a fresh appreciation for the intellectual courage and pioneering insights of classic texts, in which authors such as Durkheim, Marx, and Weber boldly theorized industrial capitalism and industrial society as it rapidly constructed itself in their midst during the nineteenth and early twentieth centuries. My work here has also been inspired by mid-twentieth-century thinkers such as Hannah Arendt, Theodor Adorno, Karl Polanyi, Jean-Paul Sartre, and Stanley Milgram, who struggled to name the unprecedented in their time as they faced the comprehension-defying phenomena of totalitarianism and labored to grasp their trail of consequence for the prospects of humanity. My work has also been deeply informed by the many insights of visionary scholars, technology critics, and committed investigative journalists who have done so much to illuminate key points on the map that emerges here.

During the last seven years I have focused closely on the top surveillance capitalist firms and their growing ecosystems of customers, consultants, and competitors, all of it informed by the larger context of technology and data science that defines the Silicon Valley zeitgeist. This raises another important distinction. Just as surveillance capitalism is not the same as technology, this new logic of accumulation cannot be reduced to any single company or group of companies. The top five internet companies—Apple, Google, Amazon, Microsoft, and Facebook—are often regarded as a single entity with similar strategies and interests, but when it comes to surveillance capitalism, this is not the case.

First, it is necessary to distinguish between capitalism and surveillance capitalism. As I discuss in more detail in Chapter 3, that line is defined in part by the purposes and methods of data collection. When a firm collects behavioral data with permission and solely as a means to product or service improvement, it is committing capitalism but not surveillance capitalism. Each

of the top five tech companies practices capitalism, but they are not all pure surveillance capitalists, at least not now.

For example, Apple has so far drawn a line, pledging to abstain from many of the practices that I locate in the surveillance capitalist regime. Its behavior in this regard is not perfect, the line is sometimes blurred, and Apple might well change or contradict its orientation. Amazon once prided itself on its customer alignment and the virtuous circle between data collection and service improvement. Both firms derive revenues from physical and digital products and therefore experience less financial pressure to chase surveillance revenues than the pure data companies. As we see in Chapter 9, however, Amazon appears to be migrating toward surveillance capitalism, with its new emphasis on "personalized" services and third-party revenues.

Whether or not a corporation has fully migrated to surveillance capitalism says nothing about other vital issues raised by its operations, from monopolistic and anticompetitive practices in the case of Amazon to pricing, tax strategies, and employment policies at Apple. Nor are there any guarantees for the future. Time will tell if Apple succumbs to surveillance capitalism, holds the line, or perhaps even expands its ambitions to anchor an effective alternative trajectory to a human future aligned with the ideals of individual autonomy and the deepest values of a democratic society.

One important implication of these distinctions is that even when our societies address capitalist harms produced by the tech companies, such as those related to monopoly or privacy, those actions do not ipso facto interrupt a firm's commitment to and continued elaboration of surveillance capitalism. For example, calls to break up Google or Facebook on monopoly grounds could easily result in establishing multiple surveillance capitalist firms, though at a diminished scale, and thus clear the way for more surveillance capitalist competitors. Similarly, reducing Google and Facebook's duopoly in online advertising does not reduce the reach of surveillance capitalism if online advertising market share is simply spread over five surveillance capitalist firms or fifty, instead of two. Throughout this book I focus on the unprecedented aspects of surveillance capitalist operations that must be contested and interrupted if this market form is to be contained and vanquished.

My focus in these pages tends toward Google, Facebook, and Microsoft. The aim here is not a comprehensive critique of these companies as such. Instead, I view them as the petri dishes in which the DNA of surveillance capitalism is best examined. As I suggested earlier, my goal is to map a new logic and its operations, not a company or its technologies. I move across the boundaries of these and other companies in order to compile the insights that can flesh out the map, just as earlier observers moved across many examples to grasp the once-new logics of managerial capitalism and mass production. It is also the case that surveillance capitalism was invented in the United States: in Silicon Valley and at Google. This makes it an American invention, which, like mass production, became a global reality. For this reason, much of this text focuses on developments in the US, although the consequences of these developments belong to the world.

In studying the surveillance capitalist practices of Google, Facebook, Microsoft, and other corporations, I have paid close attention to interviews, patents, earnings calls, speeches, conferences, videos, and company programs and policies. In addition, between 2012 and 2015 I interviewed 52 data scientists from 19 different companies with a combined 586 years of experience in high-technology corporations and startups, primarily in Silicon Valley. These interviews were conducted as I developed my "ground truth" understanding of surveillance capitalism and its material infrastructure. Early on I approached a small number of highly respected data scientists, senior software developers, and specialists in the "internet of things." My interview sample grew as scientists introduced me to their colleagues. The interviews, sometimes over many hours, were conducted with the promise of confidentiality and anonymity, but my gratitude toward them is personal, and I publicly declare it here.

Finally, throughout this book you will read excerpts from W. H. Auden's *Sonnets from China,* along with the entirety of Sonnet XVIII. This cycle of Auden's poems is dear to me, a poignant exploration of humanity's mythic history, the perennial struggle against violence and domination, and the transcendent power of the human spirit and its relentless claim on the future.

PART I

THE FOUNDATIONS OF SURVEILLANCE CAPITALISM