THE AGE OF EXTRACTION

HOW TECH PLATFORMS CONQUERED THE ECONOMY AND THREATEN OUR FUTURE PROSPERITY

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CONTENTS

THE AGE OF EXTRACTION

It was at roughly the same time that the artificial intelligence firm OpenAI debuted a new voice that sounded strikingly similar to actress Scarlett Johansson.[3] Johansson had previously refused offers to license her voice, but apparently the firm went ahead and created a replica anyway. She is in a better situation than the golfer Jack Nicklaus, however, who sold the rights to his name and likeness and has been unable to control the conduct of an AI-replica named "Digital Jack," operated by a firm named Soul Machines.[4] It speaks to the apparent replaceability of even the most famous of humans.

The fears of our diminished importance arrive at a time when many Americans have come to feel a parallel sense of economic marginalization. Over the last quarter century, even when the economy has been healthy by traditional indicators, a great majority of Americans remain doubtful about their economic future. Many younger Americans went to college, worked hard, and still cannot afford decent housing. They fear being worse off than their parents, something once unheard of in this land. The contrast with corporate citizens is stark; many American corporations seem to have escaped any usual orbit and blasted off into an outer space of perpetual profit, bringing their executives along for the ride.

We must see that the problems of technological and economic marginalization are entwined. Technology has never been neutral, but rather reflects ideology and what it is designed to do. Today's great tech platforms are impressive, entertaining, and convenient, but also designed to be some of history's most advanced tools for extracting wealth and resources from the broader economy. Consequently, as they become essential to everything, we are at risk of building an economy that is perpetually unfair for much of humanity.

The phrase "wealth extraction" is the key to this book. It refers to the ability to take money from everyone else and is born of being essential and unavoidable. As the tech platforms have grown and evolved over the last decade, they have focused their attention on refining their methods of extraction. In return for an undeniable and unescapable utility, they are fine-tuned to take as much as possible—data, attention, profit margins—from everyone else.

We remain in the early days of platform capitalism and commercially relevant artificial intelligence. But we risk falling into a two-class age, where many industries become divided into two groups: the extractors and their agents on the one side; dependent businesses, consumers, and employees on the other. There is every reason to fear living in a future with a technologically armored wall between the haves and have-nots. We should also fear a future in which the private power and wealth aggregated in the tech platforms comes to influence and combine with the public powers of government.

The main goal of this book, then, is to help readers understand the emergent form of economic power in our time—the artificially intelligent tech platform. You may already work in an industry deeply influenced by platforms or have had your life affected by them in other ways. If not, you should know: they are probably coming for you.

This book also aims to answer a question: Just what happened to the broad spread of prosperity and democracy many expected to follow the Internet revolution? Back in the 1990s and 2000s, many believed that the popular Internet would make everyone better off in an evenhanded manner while spreading democracy around the world. That was wrong: a handful of platforms and owners have taken the lion's share of the new cash, and it is autocracy, not democracy, that is on the rise. If we are to imagine a better future, we need to understand what happened and why those prophecies did not come to pass.

To that end—in order to understand our past and our future—this book begins by explaining the origins of platform power. The power of the tech platforms relies on ancient economics: there have been essential platforms in every civilization. Platform power also bears some similarity to other historic forms of economic power, such as land ownership and the industrial power of manufacturing. But platform power is distinct from both of these, as its power does not lie in production but rather in catalysis. It resides in the *hosting* of economic activity and the *extraction* of value, including the *harvesting* of specialized assets like data and human attention. As we shall explain, the tech platforms have combined old principles and new technologies to become the ascendant

economic powers of our time. That's why few can ignore what it will mean for the ongoing transformation of the United States and the world.

IS THIS A PROBLEM THAT SOLVES ITSELF?

Some may find the preceding paragraphs much too gloomy and pessimistic. Technological advance and prosperity have always gone hand in hand, after all. Surely we should expect advances in platform technology and artificial intelligence to make humanity wealthier and happier. Even if some have ended up with a little more right now, we ought to expect everyone to benefit over the long run. This particular brand of tech optimism has well-known adherents. Jeff Bezos, Amazon's founder, has repeatedly suggested that we live in the best of times. Marc Andreessen, a venture capitalist well known in Silicon Valley, writes that "there is no material problem—whether created by nature or by technology—that cannot be solved with more technology."[5]

Sam Altman, the CEO of OpenAI, is among those who believe that technological advances are our best solution to the problems of uneven wealth. To his credit, he takes seriously the fact that humanity is suffering from a spread of inequality. He is the cofounder of a group known as "Tools for Humanity," which identifies humanity's "grand challenges" as "global income inequality, governance of existential risks, and distinguishing humans from artificial intelligence."[6]

Altman argues that improving artificial intelligence is the clearest way to solve economic inequalities and the problem of poverty. In a manifesto written in September 2024, Andreessen wrote that once we achieve better AI, "we can have shared prosperity to a degree that seems unimaginable today."[7] In an interview with author Nate Silver, Altman said, "If you have something like an AGI [artificial general intelligence], I think poverty really does just end."[8]

I take Altman as well-meaning and there is an admirable optimism in this declaration. But it is, at best, a statement of faith. History, unfortunately, gives us a more realistic picture of the

impact of new technologies on the distribution of wealth in society. It is unquestionably true that technological change creates wealth. It is the division of those spoils that has always been the tricky part. And too often, technological advances have been used to widen, not narrow, economic divides.

There have certainly been technologies, such as the agricultural plow, that have spread new productivity and wealth to property owners around the world. But there have been other technologies, such as the cotton gin, that have taken a bad situation and made it worse. In the case of the cotton gin—which perpetuated plantation slavery—the problem wasn't the technology itself but the economic structure of the American South.

The nations that have actually succeeded in sustaining long-term growth and equality have not, historically, taken a trickle-down approach. For example, the United States has taken very different approaches at different times. During its best and most forward-thinking years, the United States actually sought to balance economic power, whether through the broad distribution of land and other productive assets, the breaking up of monopolies, protecting worker organizing, or building a social safety net. But during our worst years, we have just accepted a centralization of economic power, as in slave states before the Civil War, or the tolerance of monopolies in the 1890s and 1920s. The latter approach has not gone well, in the United States or elsewhere.

It is unscientific to take technology as some kind of omnibenevolent godhead that will act by itself to solve humanity's problems. What technology will do for us depends on how we design it and where economic power resides. That's why the real challenge for humanity is to design an economic future that works for more people, rather than assuming that future will just arrive someday.

THE BETTER ALTERNATIVE: STRUCTURAL BALANCING

The U.S. Constitution was predicated on a deep suspicion of all forms of unaccountable power. The revolutionaries had witnessed firsthand the brutality of both British monopoly and

colonial government. The Constitution's approach, engineered by James Madison, depends on structural balancing. It did not assume that power would dissipate naturally. Instead, it divides and balances power to avoid the dangers of tyranny. It aims to respect freedoms while constantly seeking balance. Even though the Constitution was mainly concerned with public power, that same Madisonian tradition holds the key to our economic future. Power is power, whether private or public.

You may be skeptical that the concept of balance has any place in American commerce, given that capitalism is said to thrive on animal passions. You might think that balance would hinder growth or dampen incentives. But when done well, this is simply not true. Take as an example an institution that could not be more American or commercial, yet puts economic balancing at its core. That institution is the National Football League.

It may be surprising to hear it, but the United States' National Football League has long embraced the kind of balancing favored by figures like James Madison. It is a simple fact that a city like Los Angeles or New York has a larger local media audience than a city like Kansas City or Baltimore. Without balancing, the teams in large, rich cities would employ all the best players and dominate their rivals. It would be a two-class league: divided between perpetual winners and losers.

The NFL intervenes strongly to prevent that outcome. It wisely avoids interventions that might seem unfair, like giving smaller cities a ten-point lead. The interventions are, instead, structural, centered on salary caps, the draft, and schedule. The league also has a strong union that bargains collectively for the players, and the league divides advertising revenue evenly among teams. The result is that a city that is smaller and less wealthy, like Kansas City, can compete with giant metropolises—and win.

Some might consider the NFL's rules to be heavy-handed. But does the NFL embrace fairness at the price of prosperity? The answer is no: the NFL is the most valuable sports league in the world. More generally, as *The Wall Street Journal* points out, American sports leagues are more valuable than the unbalanced European leagues, despite having smaller audiences.[9] The point is that prosperity, fairness, and growth are not incompatible. And

when it comes to nations, as the World Bank affirms, it is the more equitable, economically balanced countries that tend to be wealthier on a per capita basis.

Structural balancing, done correctly, speaks to an enlightened self-interest that can yield greater wealth and prosperity for all. As Tocqueville wrote in the 1830s, Americans "are fond of explaining almost all the actions of their lives by the principle of interest rightly understood."[10] They explain "how an enlightened regard for themselves constantly prompts them to assist each other." We would be an even wealthier country if we could draw on the full potential of the entire population, and not just a few regions, classes, or companies.

THE PROMISE OF A PLATFORM ECONOMY

Our extraordinary technological revolutions have given humanity great abundance. For the first time in history, we have the ability to create a sustainable and happy prosperity for all. Jeff Bezos was correct that we have more than ever before, with technologies capable of producing more than enough for everyone.

What we don't have is the structure—an architecture of equality to match current technological realities. The program outlined in this book calls for strong anti-monopoly policies meant to curb obvious and illegal aggregation of power. This is a project that I've been personally involved in for more than a decade, and one that is underway in the 2020s with American and European lawsuits against Google, Amazon, Facebook, and others. But for the longer term, we need neutrality rules for platforms that both preserve the economic flourishing that platforms catalyze and also stop those same platforms from extracting too much from everyone else.

What this book will show you is how we can do it. That means a journey with several steps. First, it is essential to learn the basics of platform economics. The neutral platform is the foundation of any broadly prosperous society, being a structure that catalyzes economic activity. But it can also become an instrument of undue wealth extraction, as we learned in the age of the railroads, and

as we are learning again today. The next step is to understand the specific history of today's tech platforms: the first computing and communications platforms run by IBM and AT&T, and the government interventions that forced them to serve the broader economy. From that point, we can understand the current generation of platforms—Google, Facebook, Amazon, Microsoft, and the rest—and their adoption of the business models we experience today. The second half of the book takes a step back to understand the dangers of centralized economic power over a broader historic context, examining what kind of interventions have worked and will work to restructure the economy.

A large and wealthy middle class is key to our future prosperity. It has been, at times, America's trademark, and it should be our goal. If we do it right, tech platforms will actually play a major role in creating and sustaining a broadly wealthy country, and also in creating an economic model worth exporting to the rest of the world. But if we get things wrong, we risk a future in which our technologies actively worsen the division and resentment that are the curse of our age.

PART I

UNDERSTANDING PLATFORM POWER

Not so long ago, in the early 2000s, we lived in an age of extraordinary optimism about the Internet and what it would do for all of us. It would interconnect all humanity, give everyone a creative outlet, and make democracy blossom around the world. Economically and socially, it would empower the little guys—favor entrepreneurial individuals—at the expense of faceless corporations. As tech pundit Jeff Jarvis wrote in 2009, "small is the new big."[1] He wrote that "a tiny start-up can become a manufacturing company using somebody else's factory and distribution while selling to a worldwide market. [. . .] Any of us can start a highly specialized and targeted media company using blog software. [. . .] The Lilliputians have triumphed. The economies of scale must now compete with the economies of small."[2]

Jarvis was hardly alone in his optimism. Business writer Seth Godin titled an entire book *Small Is the New Big* (2006). Professor Yochai Benkler, then at Yale, argued that self-organizing production systems would compete with and possibly overcome managerial or price-driven systems.[3] Richard Florida's 2003 *The Rise of the Creative Class* assumed a world in which creators would easily become the agents of their own economic destiny. One way or

another, the message was the same: in the Internet age, the spoils would belong to everyone.

Not very often are so confident a set of predictions so wrong. The reason they were wrong is important to this book and essential to learn from. The key mistake was a failure to truly understand platforms and their unique brand of power. For these writings and projections came at a time when several open platforms—the Web, the Internet, a disciplined Microsoft—really did favor the little guy. But it was not to last, as we shall see.

What these writers did not predict is that it would not be the little guys who prospered, but their hosts—a new generation of platforms that would find ingenious ways to take the lion's share of the Internet economy for themselves. To understand this point and how it happened, we must back up to introduce the very basics of platform economics.

CHAPTER 1

THE GENIUS OF THE ANCIENT CITY SQUARE

Everything needs to happen somewhere. That is why every civilization has had specialized spaces that facilitate commerce, speech, and other activities. In ancient Greece, the town square, or "agora," served not just for buying and selling stuff but also for religious festivals, entertainment, and government.[1] The bazaar was invented in the Middle East and much of commerce in ancient China centered on the market-town, or 市. These are the ancestors of today's tech platforms, and we need to understand what gave them their economic significance.

It might help to better define what we mean by a "platform." (The English word comes from the French *platte fourme* or "flat form.") It can be described as any space or structure that in one way or another brings together two or more groups to transact or interact while reducing the costs of doing so. They can be buyers and sellers, but also readers and publishers, listeners and speakers. And as the French word suggests, a platform usually implied a certain evenhandedness.

This definition of a platform covers a lot of ground. It covers the most ancient form of transactional platform just described: the city marketplace. The term encompasses more, including

stock exchanges, suburban shopping malls, and the Tokyo fish market, all of which bring together buyers and sellers. And as we shall see later, it also includes so-called enabling platforms that allow their buyers and sellers to do things they otherwise could not.

A CATALYTIC SPACE

In chemistry, a catalyst is anything that initiates or accelerates a chemical reaction without being affected itself. The operation of many complex natural systems—like most of the biochemistry that keeps us alive—is largely a story of catalysis.

The same is true in the economy: it is the catalysts that matter most. Selling does not simply "happen" if the price is right. The conditions must be right. It is this power—a catalytic power—that platforms harness.

Stated more formally, the most basic function of the platform is to enable mutually beneficial transactions—and thereby generate wealth or the satisfaction of human wants and needs. Platforms do so by solving not just one but several barriers that otherwise prevent transactions from occurring.* Consider four major challenges that a successful platform addresses.

First Problem: Matching

I used to have a fig tree in my backyard, and when the time came, it bore a lot of fruit. A good fig tree will actually produce far more output than any one family can eat. In economic terms, a fig tree creates a surplus. In fact, most agricultural holdings create a surplus relative to family consumption.

The existence of a surplus creates the potential for trade—

* Lowering transaction costs, in other words. Readers with a background in economics will recognize that this is a point similar to that made in Oliver Williamson's *Transaction Cost Economics*. However, Williamson largely focused on the advantages that an integrated firm might have, as opposed to the reduction of transaction costs between unrelated parties.

here, selling excess produce to buyers. In a basic economics class, it is common to assume that the matching of buyers and sellers happens automatically, if the buyer values it more than the seller. If so, the transaction happens, as if by magic.

In real life, as it isn't always easy to match buyers and sellers, extra produce is often just left to rot. It is the facilitation of such transactions—the existence of marketplaces—that makes all the difference. The successful matching of buyers and sellers is required to make transactions happen. That is why platforms and marketplaces are so key to successful economies.

In this matchmaking function lies much of the value in a platform. In the language of platform economics popularized by French economist Jean Tirole, the platform exists to bring two "sides" of a market together.[2] The more buyers and sellers a platform can muster, the more valuable it is. More buyers and more sellers attract more of each, in a version of what is sometimes called "network effects."* As economist David Evans writes in *Matchmakers*, platform businesses have as "raw materials [. . .] the different groups of customers that they help bring together."

Think how often advertising for a business conference relies on *who* will be there. Social media start-ups that fail to reach a critical mass don't make it; this is one of the reasons that a site like Facebook, despite the many scandals, whistleblowers, and privacy violations, keeps chugging along, as it still has everyone on it.

Sometimes a platform may have trouble attracting enough members of one side of a transactional pair. Often it is buyers who are scarce: when I worked in industry, I recall going to trade shows that were all sellers of equipment and no buyers and were therefore considered a bust. In the old days, a party with too many men and too few women was called a "sausage fest." Sophisticated platform operators often try to subsidize the missing side, or even pay one group to show up. Hence the practice of paying

* "Network effects" (or externalities) refers to the idea that a network may become more valuable the more people use it and was originally used to describe services like telephone networks. In the platform context such effects are important, and are also found on both sides of the platform: i.e., more buyers attracts more sellers, which attracts more buyers and so on.