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# Technological Revolutions And Financial Capital

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Technological Innovation and Economic Performance

Financing Innovation in the United States, 1870 to the Present

Industrial Policy for the Manufacturing Revolution

How to Make an Entrepreneurial State

The Technology Trap

Robot Rights

Information Technology and Socialist Construction

Financial Crisis Management and Democracy

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## The Digital Banking Revolution Technological Revolutions and Financial Capital

*Technological Revolutions And  
Financial Capital*

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### **BRADSHAW GIDEON**

*vanity fair* National Academies Press

This book offers a critical reflection on the meaning and expected impact of the fourth industrial revolution, and its implications for industrial policy. Industrial revolutions are considered not only in terms of technological progress, but also in the context of the changing relationship between market and production dynamics, and the social and political conditions enabling the development of new technologies. Industrial Policy for the Manufacturing Revolution aims to increase our capacity to anticipate and adapt to the forthcoming structural changes. A concrete illustration of this industrial policy is provided through an experience of its implementation at regional level.

**Technological Revolutions and Financial Capital** Princeton University Press

Leading economists and economic historians offer case studies and theoretical perspectives that fill a longstanding gap in the existing literature on technology-driven industrial development, discussing the interaction of finance and technological innovation in the American economy since the Second Industrial Revolution. Although technological change is vital for economic growth, the interaction of finance and technological innovation is rarely studied. This pioneering volume examines the ways in which innovation is funded in the United States. In case studies and theoretical discussions, leading economists and economic historians analyze how inventors and technologically creative entrepreneurs have raised funds for their projects at different stages of U.S. economic development, beginning with the post-Civil War period of the Second Industrial Revolution. Their discussions point to intriguing insights about how the nature of the technology may influence its financing and, conversely, how the availability of funds influences technological advances. These studies show that over the long history of American technological advancement, inventors and innovators have shown considerable flexibility in finding ways to finance their work. They have moved

to cities to find groups of local investors; they have worked for large firms that could tap the securities market for funds; they have looked to the federal government for research and development funding; and they have been financed by the venture capital industry. The studies make it clear that methods of funding innovation--whether it is in the auto industry or information technology--have important implications for both the direction of technological change and the competitive dynamism of the economy.

**Technological Innovation and Economic Performance**  
Penguin

'A thought-provoking look at the technology that is changing the world of business and the benefits, pitfalls, and challenges for society as a whole.' - Kenneth I. Chenault, former chief executive officer, American Express Company Throughout the twentieth century, technology and economics drove a dominant logic: bigger was almost always better. It was smart to scale up - to take advantage of classic economies of scale. But in the unscaled economy, size and scale have become a liability. Today's most successful companies - Uber, Airbnb, Amazon, Salesforce - have defied the traditional 'economies of scale' approach by renting scale instead of spending vast amounts of money building it. And a new generation of upstarts is using artificial intelligence to automate tasks that once required expensive investment, enabling them to grow big without the bloat of giant organisations. In *Unscaled*, Hemant Taneja convincingly shows how the unscaled economy is remaking massive, deeply-rooted industries and opening up fantastic possibilities for entrepreneurs, imaginative companies and resourceful individuals. Beyond that, it can be the model for solving some of the world's greatest problems, including climate change and soaring healthcare costs, potentially reversing many of the ills brought on by mass industrialization. The unscale wave has only just started. To succeed in business today, companies, CEOs and leaders everywhere must unlearn what they have been taught - they must embrace an unscaled mindset.

**Financing Innovation in the United States, 1870 to the Present** Springer Nature

This work traces the long-term historical relationship between technical change and the behaviour of financial markets. Based on Schumpeter's theories of the clustering of innovations and with illustrations from the past two centuries, it explains why each technological revolution gives rise to a paradigm shift and a "New Economy" and how these "opportunity explosions", focused on specific industries, also lead to the recurrence of financial bubbles and crises. By analyzing the changing relationship between finance capital and production capital during the emergence, diffusion and assimilation of new technologies throughout the global economic system, this book sheds light on some of the puzzling economic phenomena of our times.

**Industrial Policy for the Manufacturing Revolution** OUP  
Oxford

Thoroughly grounded in an extensive body of international research and analysis, this book investigates the concepts surrounding a firm's knowledge capital. These concepts play an integral part in the evolution of economic and managerial thinking, particularly in relation to the themes of firm, knowledge and innovation. The author advocates a greater socialization of the production of knowledge capital that stands in contradiction to the strong appropriation strategies that are predominant today. This book presents a historical analysis of the facts with a strong basis in the recent literature in economics and innovation management as well as in case studies of CAC 40 companies that have been conducted over the course of the past few years. [How to Make an Entrepreneurial State](#) John Wiley & Sons Technological revolutions have increased the world's wealth unevenly and in ways that have accelerated climate change. This report argues that achieving The Paris Agreement's objectives would require a massive transfer of existing and commercially proven low-carbon technologies (LCT) from high-income to developing countries where the bulk of future emissions is expected to occur. This mass deployment is not only a necessity but also an opportunity: Policies to deploy LCT can help countries achieve economic and other development objectives, like improving human health, in addition to reducing greenhouse gases (GHGs). Additionally, LCT deployment offers an opportunity

for countries with sufficient capabilities to benefit from participation in global value chains and produce and export LCTs. Finally, the report calls for a greater international involvement in supporting the poorest countries, which have the least access to LCT and finance and the most underdeveloped physical, technological, and institutional capabilities that are essential to benefit from technology.

The Technology Trap John Wiley & Sons

From the Industrial Revolution to the age of artificial intelligence, Carl Benedikt Frey offers a sweeping account of the history of technological progress and how it has radically shifted the distribution of economic and political power among society's members. As the author shows, the Industrial Revolution created unprecedented wealth and prosperity over the long run, but the immediate consequences of mechanization were devastating for large swaths of the population. These trends broadly mirror those in our current age of automation. But, just as the Industrial Revolution eventually brought about extraordinary benefits for society, artificial intelligence systems have the potential to do the same. Benedikt Frey demonstrates that in the midst of another technological revolution, the lessons of the past can help us to more effectively face the present. --From publisher description.

*Robot Rights* ReadHowYouWant.com

Around the world, consciousness of the threat to our environment is growing. The majority of solutions on offer, from using efficient light bulbs to biking to work, focus on individual lifestyle changes, yet the scale of the crisis requires far deeper adjustments.

*Ecology and Socialism* argues that time still remains to save humanity and the planet, but only by building social movements for environmental justice that can demand qualitative changes in our economy, workplaces, and infrastructure. Chris Williams is a longtime environmental activist, professor of physics and chemistry at Pace University, and chair of the science department at Packer Collegiate Institute. He lives in New York City.

Information Technology and Socialist Construction MIT Press

Competition, the drive for efficiency, and continuous improvement ultimately push businesses toward automation and later towards autonomy. If a business can operate without human intervention, it will minimize its operational cost. If Uber can remove the expense of a driver with an autonomous vehicle, it will provide its service cheaper than a competitor who can't. If an

artificially intelligent trading company can search, find, and take advantage of some arbitrage opportunity, then it can profit where its competitors cannot. A business that can analyze and execute in real-time without needing to wait for a human to act, is a business that will be able to take advantage of brief inefficiencies from other markets or businesses. This trend following a thesis that is based on 100 years of proven economic theory. Short-wave economic cycles, those 5- to 10-year cycles, are driven by credit but the long-wave economic cycles, those 50- to 60-year cycles, are driven by technological revolution. We've had 5 cycles over the past 200 years with the last wave, the Age of Information & Telecommunications. We've seen evidence that a new cycle has begun. Technological revolutions come by way of a cluster of new innovations. About a decade ago, you started to see AI, robotics and IoT (sensors) delivering on automation. That's been powerful, but not transformational. It does not force businesses to fundamentally change how they do business. The last piece of the puzzle was cryptocurrency because it allows us to process and transfer economic value without human intervention. Soon, there will be a global race to build autonomous operations. Businesses and organizations without autonomous operations simply will not be able to compete with those that do because ... autonomy is the ultimate competitive advantage. Crypto is the mechanism that will accrue value from being the infrastructure for the next digital financial revolution. Crypto Asset Investing lays out a case that we've begun a new technological revolution similar to the Internet Age of the 1990's. Artificial intelligence, the Internet of Things, robotics and cryptocurrency are converging to deliver on a new age, what I call the Age of Autonomy. Understanding the transformation that's taken place before anyone else can yield enormous investment opportunity. In this book, you'll learn how and why to invest in crypto assets.

**Financial Crisis Management and Democracy** Penguin UK

As tech giants and startups disrupt every market, those who master large-scale software delivery will define the economic landscape of the 21st century, just as the masters of mass production defined the landscape in the 20th. Unfortunately, business and technology leaders are woefully ill-equipped to solve the problems posed by digital transformation. At the current rate of disruption, half of S&P 500 companies will be replaced in the next ten years. A new approach is needed. In *Project to Product*,

Value Stream Network pioneer and technology business leader Dr. Mik Kersten introduces the Flow Framework—a new way of seeing, measuring, and managing software delivery. The Flow Framework will enable your company's evolution from project-oriented dinosaur to product-centric innovator that thrives in the Age of Software. If you're driving your organization's transformation at any level, this is the book for you.

*Big Bang Disruption* Edward Elgar Publishing

Innovation, in economic activity, in managerial concepts and in engineering design, results from creative activities, entrepreneurial strategies and the business climate. Innovation leads to technological, organizational and commercial changes, due to the relationships between enterprises, public institutions and civil society organizations. These innovation networks create new knowledge and contribute to the dissemination of new socio-economic and technological models, through new production and marketing methods. *Innovation Economics, Engineering and Management Handbook 1* is the first of the two volumes that comprise this book. The main objectives across both volumes are to study the innovation processes in today's information and knowledge society; to analyze how links between research and business have intensified; and to discuss the methods by which innovation emerges and is managed by firms, not only from a local perspective but also a global one. The studies presented in these two volumes contribute toward an understanding of the systemic nature of innovations and enable reflection on their potential applications, in order to think about the meaning of growth and prosperity.

*Ecology and Socialism* Edward Elgar Publishing

A comprehensive history of market-shaping industries and their impact on how we invest today. This engaging book highlights the history of industrial development and its impact on investors. Today's investors will learn about past approaches to technological advances such as electricity, the railroad, the telephone, the computer, and much more—while gaining insights on how to appraise the "new technology" companies of the future. This complete and well-researched history of industries and investing wouldn't be complete without a look at: how Thomas Edison lost control of his company, the impact of the Standard Oil breakup, the early days of the wireless industry, and the changing face of the computer industry today. Investors looking for

industry-shaping investments will undoubtedly use *Engines That Move Markets* as their guide.

**Sooner Safer Happier** Brookings Institution Press

From the industrial revolution to the railway age, through the era of electrification, the advent of mass production, and finally to the information age, the same pattern keeps repeating itself. An exciting, vibrant phase of innovation and financial speculation is followed by a crash, after which begins a longer, more stately period during which the technology is actually deployed properly. This collection of surveys and articles from *The Economist* examines how far technology has come and where it is heading. Part one looks at topics such as the “greying” (maturing) of IT, the growing importance of security, the rise of outsourcing, and the challenge of complexity, all of which have more to do with implementation than innovation. Part two looks at the shift from corporate computing towards consumer technology, whereby new technologies now appear first in consumer gadgets such as mobile phones. Topics covered will include the emergence of the mobile phone as the “digital Swiss Army knife”; the rise of digital cameras, which now outsell film-based ones; the growing size and importance of the games industry and its ever-closer links with other more traditional parts of the entertainment industry; and the social impact of technologies such as text messaging, Wi-Fi, and camera phones. Part three considers which technology will lead the next great phase of technological disruption and focuses on biotechnology, energy technology, and nanotechnology.

**Engines That Move Markets** Walter de Gruyter GmbH & Co KG  
 “Members of the anti-globalization movement will find the explanations given in this book insightful, as will employees of international organizations due to the important policy messages. The theoretical interest within the book will appeal to development economists and evolutionary economists, and policymakers and politicians will find the explanations of the present failure of many small nations in the periphery invaluable.”--BOOK JACKET.

*Doing Capitalism in the Innovation Economy* Haymarket Books  
 This book examines how new technologies have transformed global markets, as well as global business strategy. It explores how digitalization, artificial intelligence, virtual reality, and other changes in technology have led both to new opportunities but also to increased uncertainty within both business and legislature.

By pulling together academics from Russia, China, France, Hungary, Azerbaijan, Tajikistan and other countries, this book provides a truly international perspective on the impact of new technologies across areas including smart cities, corporate governance, EU legislation and logistical enterprise. It will be valuable reading for academics interested in digitization, digital business, digital entrepreneurship and the way that technological change has informed strategy.

**Globalization, Economic Development and Inequality**

Cambridge University Press

A unique insight into the interaction between the state, financiers and entrepreneurs in the modern innovation economy.

**Digital Revolutions in Public Finance** Routledge

A ground-breaking account which shows how the public sector must adapt, but also persevere, in order to advance technology and innovation. From self-driving cars to smart grids, governments are experimenting with new technologies to significantly change the way we live. Innovation has become vitally important to states across the world. Rainer Kattel, Wolfgang Drechsler and Erkki Karo explore how public bodies pursue innovation, looking at how new policies are designed and implemented. Spanning Europe, the USA and Asia, the authors show how different institutions finance new technologies and share cutting-edge information. They argue for the importance of ‘agile stability’, demonstrating that in order to successfully innovate, state organizations have to move nimbly like start-ups and yet ensure stability at the same time. And that, particularly in the light of the Covid-19 pandemic, governments need both long-term policy and dynamic capabilities to handle crises. This vital account explores the complex and often contradictory positions of innovating public bodies—and shows how they can overcome financial and political resistance to change for the good of us all.

**The Sixth Wave** World Bank Publications

Tyler Cowen’s controversial New York Times bestseller—the book heard round the world that ignited a firestorm of debate and redefined the nature of America’s economic malaise. America has been through the biggest financial crisis since the great Depression, unemployment numbers are frightening, media wages have been flat since the 1970s, and it is common to expect that things will get worse before they get better. Certainly, the multidecade stagnation is not yet over. How will we get out of this

mess? One political party tries to increase government spending even when we have no good plan for paying for ballooning programs like Medicare and Social Security. The other party seems to think tax cuts will raise revenue and has a record of creating bigger fiscal disasters than the first. Where does this madness come from? As Cowen argues, our economy has enjoyed low-hanging fruit since the seventeenth century: free land, immigrant labor, and powerful new technologies. But during the last forty years, the low-hanging fruit started disappearing, and we started pretending it was still there. We have failed to recognize that we are at a technological plateau. The fruit trees are barer than we want to believe. That’s it. That is what has gone wrong and that is why our politics is crazy. In *The Great Stagnation*, Cowen reveals the underlying causes of our past prosperity and how we will generate it again. This is a passionate call for a new respect of scientific innovations that benefit not only the powerful elites, but humanity as a whole.

*The Nature of Technology* Princeton University Press

A provocative attempt to think about what was previously considered unthinkable: a serious philosophical case for the rights of robots. We are in the midst of a robot invasion, as devices of different configurations and capabilities slowly but surely come to take up increasingly important positions in everyday social reality—self-driving vehicles, recommendation algorithms, machine learning decision making systems, and social robots of various forms and functions. Although considerable attention has already been devoted to the subject of robots and responsibility, the question concerning the social status of these artifacts has been largely overlooked. In this book, David Gunkel offers a provocative attempt to think about what has been previously regarded as unthinkable: whether and to what extent robots and other technological artifacts of our own making can and should have any claim to moral and legal standing. In his analysis, Gunkel invokes the philosophical distinction (developed by David Hume) between “is” and “ought” in order to evaluate and analyze the different arguments regarding the question of robot rights. In the course of his examination, Gunkel finds that none of the existing positions or proposals hold up under scrutiny. In response to this, he then offers an innovative alternative proposal that effectively flips the script on the is/ought problem by introducing another, altogether different way to conceptualize the social

situation of robots and the opportunities and challenges they present to existing moral and legal systems.

*The Future of Technology* Hachette UK

The Nature of Technology will change the way you think about this fundamental subject forever. W. Brian Arthur's many years of

thinking and writing about technology have culminated in a unique understanding of his subject. Here he examines the nature of technology itself: what is it and how does it evolve? Giving rare insights into the evolution of specific technologies and a new framework for thinking about others, every sentence points to some further truth and fascination. At a time when we are ever

more reliant on technological solutions for the world's problems, it is extraordinary how little we actually understand the processes that lead to innovation and invention. Until now. This will be a landmark book that will define its subject, and inspire people to think about technology in depth for the very first time.