The Fourth Industrial Revolution

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Surviving the Fourth Industrial Revolution

KAYLYN SINGH

The Emergence of the Fourth Industrial Revolution Springer Nature
World Economic Forum Founder and Executive Chairman Klaus Schwab offers a practical companion and field guide to his previous book, The Fourth Industrial Revolution. Today, technology is changing everything--how we relate to one another, the way we work, how our economies and goverments function, and even what it means to be human. One need not look hard to see how the incredible advances in artificial intelligence, cryptocurrencies, biotechnologies, and the internet of things are transforming society in unprecedented ways. But the Fourth Industrial Revolution is just beginning, says Schwab. And at a time of such tremendous uncertainty and such rapid change, he argues it's our actions as individuals and leaders that will determine the trajectory our future will take. We all have a responsibility - as citizens, businesses, and institutions - to work with the current of progress, not against it, to build a future that is ethical, inclusive, sustainable and

prosperous. Drawing on contributions from 200 top experts in fields ranging from machine learning to geoengineering to nanotechnology, to data ethics, Schwab equips readers with the practical tools to leverage the technologies of the future to leave the world better, safer, and more resilient than we found it.

Stakeholder Capitalism Kluwer Law International B.V.

In this visionary book, written by six internationally recognized Global Teacher Prize finalists, the authors create a positive and hope-filled template for the future of education. They address the hard moral, ethical and pedagogical questions facing education today so that progress can serve society, rather than destroying it from within our classrooms. This blueprint for education finally brings forward what has always been missing in education reform: a strong collective narrative with authentic examples from teachers on the front line. It is a holistic, personalized approach to education that harnesses the disruptions of the Fourth Industrial Revolution to better shape the future for the next generation, and ensure that every child can benefit from the ongoing transformations. A great read for anyone who has an interest in educating our youth for these uncertain times, highlighting why teachers will always matter.

The Geoeconomics of Technological Sovereignty Routledge

The Fourth Industrial RevolutionCurrency Profit and Prejudice Bloomsbury

Publishing
This book explores the core themes of the Fourth Industrial Revolution (4IR) highlighting the digital transformation that has been occurring in society and business. Representing an interface between technologies in the physical, digital and biological disciplines the book explores emerging technologies such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing. The findings of collaborative research studies on the potential impact of the 4IR on the labour markets, occupations, future workforce competencies and skills associated with eight industry sectors in Australia are reported. The sectors are: agriculture and mining; manufacturing and logistics; health, medical and nursing; education; retail; financial services; government services and tourism.

The Fourth Industrial Revolution
Penguin UK
World-renowned economist Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, explains that we have an opportunity to shape the fourth industrial revolution, which will fundamentally alter how we live and work. Schwab argues that this revolution is different in scale, scope and complexity from any that have come before. Characterized by a range of new technologies that are fusing the physical, digital and biological worlds, the developments are affecting all

disciplines, economies, industries and governments, and even challenging ideas about what it means to be human. Artificial intelligence is already all around us, from supercomputers, drones and virtual assistants to 3D printing, DNA sequencing, smart thermostats, wearable sensors and microchips smaller than a grain of sand. But this is just the beginning: nanomaterials 200 times stronger than steel and a million times thinner than a strand of hair and the first transplant of a 3D printed liver are already in development. Imagine “smart factories” in which global systems of manufacturing are coordinated virtually, or implantable mobile phones made of biosynthetic materials. The fourth industrial revolution, says Schwab, is more significant, and its ramifications more profound, than in any prior period of human history. He outlines the key technologies driving this revolution and discusses the major impacts expected on government, business, civil society and individuals. Schwab also offers bold ideas on how to harness these changes and shape a better future—one in which technology empowers people rather than replaces them; progress serves society rather than disrupts it; and in which innovators respect moral and ethical boundaries rather than cross them. We all have the opportunity to contribute to developing new frameworks that advance progress.

The Case for Ecosocialism Currency

The business world is currently experiencing fundamental disruption, in part driven by the technology enabled

Fourth Industrial Revolution. Corporate value is created and lost in breathtakingly short periods, and the rise of 'unicorns' against the demise of once-venerated organizations has shown that how firms compete has changed. Management and Leadership in the 4th Industrial Revolution presents a framework for managing and winning in the new accelerated world of business, focusing on the key capabilities organizations now need to achieve competitively superior performance. Building on the 'dynamic capabilities' approach already familiar to strategists and based around his own research, Stephen Wyatt shows how executives can assess the dynamic capacity of their organization - a leading indicator of future performance in comparison to their industry peers. Written in an accessible style with best practice examples from companies and quotes from executives to support each insight, this book includes a self-assessment questionnaire to measure the dynamic capacity of your organization and advice on how to strengthen areas of relative weakness. Management and Leadership in the 4th Industrial Revolution offers timely insights on driving innovation and emphasizes the importance of long-term strategy, change management and new models of dynamic leadership.

How Lateral Power Is Transforming Energy, the Economy, and the World Currency

Disruptions are being caused in the workplace due to the development of advanced software technology and the

speed at which these technological advancements are being produced. These disruptions could take diverse forms and affect various aspects of work and the lives of entities in the workplaces and families of the individual employees. Work and family are caught in the crossfire between technological disruptions and human adaptation. Hence, there is a need to assess the overall effect that the Fourth Industrial Revolution would have on work, employee work-family satisfaction, and employee well-being. Future of Work, Work-Family Satisfaction, and Employee Well-Being in the Fourth Industrial Revolution is a critical reference source that discusses practical solutions and strategies to manage challenges and address fears regarding the effect of the Fourth Industrial Revolution on the future of employment and the workforce. Featuring research on topics such as corporate governance, job satisfaction, and mental health, this book is ideally designed for human resource professionals, business managers, industry professionals, government officials, policymakers, corporate strategists, consultants, work-life balance experts, human resources software developers, business policy experts, academicians, researchers, and students.

A guide to building a better world

Springer Nature

Reimagining our global economy so it becomes more sustainable and prosperous for all Our global economic system is broken. But we can replace the

current picture of global upheaval, unsustainability, and uncertainty with one of an economy that works for all people, and the planet. First, we must eliminate rising income inequality within societies where productivity and wage growth has slowed. Second, we must reduce the dampening effect of monopoly market power wielded by large corporations on innovation and productivity gains. And finally, the short-sighted exploitation of natural resources that is corroding the environment and affecting the lives of many for the worse must end. The debate over the causes of the broken economy—laissez-faire government, poorly managed globalization, the rise of technology in favor of the few, or yet another reason—is wide open. Stakeholder Capitalism: A Global Economy that Works for Progress, People and Planet argues convincingly that if we don't start with recognizing the true shape of our problems, our current system will continue to fail us. To help us see our challenges more clearly, Schwab—the Founder and Executive Chairman of the World Economic Forum—looks for the real causes of our system's shortcomings, and for solutions in best practices from around the world in places as diverse as China, Denmark, Ethiopia, Germany, Indonesia, New Zealand, and Singapore. And in doing so, Schwab finds emerging examples of new ways of doing things that provide grounds for hope, including: Individual agency: how countries and policies can make a difference against large external

forces A clearly defined social contract: agreement on shared values and goals allows government, business, and individuals to produce the most optimal outcomes Planning for future generations: short-sighted presentism harms our shared future, and that of those yet to be born Better measures of economic success: move beyond a myopic focus on GDP to more complete, human-scaled measures of societal flourishing By accurately describing our real situation, Stakeholder Capitalism is able to pinpoint achievable ways to deal with our problems. Chapter by chapter, Professor Schwab shows us that there are ways for everyone at all levels of society to reshape the broken pieces of the global economy and—country by country, company by company, and citizen by citizen—glue them back together in a way that benefits us all.

Automation, Innovation and Economic Crisis Springer

The founder and executive chairman of the World Economic Forum on how the impending technological revolution will change our lives We are on the brink of the Fourth Industrial Revolution. And this one will be unlike any other in human history. Characterized by new technologies fusing the physical, digital and biological worlds, the Fourth Industrial Revolution will impact all disciplines, economies and industries - and it will do so at an unprecedented rate. World Economic Forum data predicts that by 2025 we will see: commercial use of nanomaterials 200 times stronger than steel and a million

times thinner than human hair; the first transplant of a 3D-printed liver; 10% of all cars on US roads being driverless; and much more besides. In The Fourth Industrial Revolution, Schwab outlines the key technologies driving this revolution, discusses the major impacts on governments, businesses, civil society and individuals, and offers bold ideas for what can be done to shape a better future for all.

Agility St. Martin's Press

The digital transformation is in full swing and fundamentally changes how we live, work, and communicate with each other. From retail to finance, many industries see an inflow of new technologies, disruption through innovative platform business models, and employees struggling to cope with the significant shifts occurring. This Fourth Industrial Revolution is predicted to also transform Logistics and Supply Chain Management, with delivery systems becoming automated, smart networks created everywhere, and data being collected and analyzed universally. The Digital Transformation of Logistics: Demystifying Impacts of the Fourth Industrial Revolution provides a holistic overview of this vital subject clouded by buzz, hype, and misinformation. The book is divided into three themed-sections: Technologies such as self-driving cars or virtual reality are not only electrifying science fiction lovers anymore, but are also increasingly presented as cure-all remedies to supply chain challenges. In The Digital Transformation of Logistics:

Demystifying Impacts of the Fourth Industrial Revolution, the authors peel back the layers of excitement that have grown around new technologies such as the Internet of Things (IoT), 3D printing, Robotic Process Automation (RPA), Blockchain or Cloud computing, and show use cases that give a glimpse about the fascinating future we can expect. Platforms that allow businesses to centrally acquire and manage their logistics services disrupt an industry that has been relationship-based for centuries. The authors discuss smart contracts, which are one of the most exciting applications of Blockchain, Software as a Service (SaaS) offerings for freight procurement, where numerous data sources can be integrated and decision-making processes automated, and marine terminal operating systems as an integral node for shipments. In The Digital Transformation of Logistics: Demystifying Impacts of the Fourth Industrial Revolution, insights are shared into the cold chain industry where companies respond to increasing quality demands, and how European governments are innovatively responding to challenges of cross-border eCommerce. People are a vital element of the digital transformation and must be on board to drive change. The Digital Transformation of Logistics: Demystifying Impacts of the Fourth Industrial Revolution explains how executives can create sustainable impact and how competencies can be managed in the digital age - especially

for sales executives who require urgent upskilling to remain relevant. Best practices are shared for organizational culture change, drawing on studies among senior leaders from the US, Singapore, Thailand, and Australia, and for managing strategic alliances with logistics service providers to offset risks and create cross-functional, cross-company transparency. The Digital Transformation of Logistics: Demystifying Impacts of the Fourth Industrial Revolution provides realistic insights, a ready-to-use knowledge base, and a working vocabulary about current activities and emerging trends of the Logistics industry. Intended readers are supply chain professionals working for manufacturing, trading, and freight forwarding companies as well as students and all interested parties.

Defence Innovation and the 4th Industrial Revolution Routledge

This book argues that the fourth industrial revolution, the process of accelerated automation of traditional manufacturing and industrial practices via digital technology, will serve to further marginalise Africa within the international community. In this book, the author argues that the looting of Africa that started with human capital and then natural resources, now continues unabated via data and digital resources looting. Developing on the notion of "Coloniality of Data", the fourth industrial revolution is postulated as the final phase which will conclude Africa’s peregrination towards recolonisation. Global cartels, networks of coloniality,

and tech multi-national corporations have turned Big Data into capital, which is left unguarded in Africa as the continent lacks the strong institutions necessary to regulate the mining of data. Written from a decolonial perspective, this book employs three analytical pillars of coloniality of power, knowledge and being. It concludes with an assessment of what could be done to help to turn the fourth industrial revolution from a curse into a resource. Highlighting the crippling continuation of asymmetrical global power relations, this book will be an important read for researchers of African studies, politics and international political economy.
Higher Education in the Era of the Fourth Industrial Revolution Routledge
Advances in technological innovations, automation, and the latest developments in artificial intelligence (AI) have revolutionized the nature of work and created a demand for a new set of skills to navigate the Fourth Industrial Revolution (Industry 4.0). Therefore, it is necessary to equip displaced workers with a new set of skills that are essential for conversion into technical or other functional areas of business. Human Capital Formation for the Fourth Industrial Revolution is an essential research publication that recognizes the need to revitalize human capital formation for graduate employability in Industry 4.0 and discusses new skills and competencies needed to cope with the challenges present within this industrial revolution. The book seeks to provide a basis for

curriculum design in line with the advances in technological innovations, automation, and artificial intelligence to enhance current and future employment. Featuring an array of topics such as curriculum design, emotional intelligence, and healthcare, this book is ideal for human resource managers, development specialists, training officers, teachers, universities, practitioners, academicians, researchers, managers, policymakers, and students.

Penguin UK

Today’s world is continually facing complex and life-threatening issues that are too difficult or even impossible to solve. These challenges have been titled “wicked” problems due to their radical and multifarious nature. Recently, there has been a focus on global cooperation and gathering creative and diverse methods from around the world to solve these issues. Accumulating research and information on these collective intelligence methods is vital in comprehending current international issues and what possible solutions are being developed through the use of global collaboration. The Handbook of Research on Using Global Collective Intelligence and Creativity to Solve Wicked Problems is a pivotal reference source that provides vital research on the collaboration between global communities in developing creative solutions for radical worldwide issues. While highlighting topics such as collaboration technologies, neuro-leadership, and sustainable global solutions, this publication explores

diverse collections of problem-solving methods and applying them on a global scale. This book is ideally designed for scholars, researchers, students, policymakers, strategists, economists, and educators seeking current research on problem-solving methods using collective intelligence and creativity.
The Fourth Industrial Revolution and Its Impact on Ethics IGI Global
The Emerging Business Models describes current issues that the business leaders and professionals are facing, as well as developments in digitalization. This book consisting of 10 chapters introduces the new technology trends and challenges that businesses today face. The authors cover several increasingly important new areas such as the Fourth Industrial Revolution, Internet of Things (IoT), financial technology (FinTech), social media, platform strategy, analytics, artificial intelligence (AI) and many other forces of disruption and innovation that shape today's realities of the world.These digital transformations are taking place at an exponential rate. The speed of innovations and breakthroughs is disrupting the traditional businesses. A better understanding of the changing environment in the new economy can enable business professionals and leaders to recognize realities, embrace changes, and create new opportunities — locally and globally — in this inevitable digital age.
The 4th Industrial Revolution IGI Global
This open access collection examines how higher education responds to the demands of the automation economy

and the fourth industrial revolution. Considering significant trends in how people are learning, coupled with the ways in which different higher education institutions and education stakeholders are implementing adaptations, it looks at new programs and technological advances that are changing how and why we teach and learn. The book addresses trends in liberal arts integration of STEM innovations, the changing role of libraries in the digital age, global trends in youth mobility, and the development of lifelong learning programs. This is coupled with case study assessments of the various ways China, Singapore, South Africa and Costa Rica are preparing their populations for significant shifts in labour market demands – shifts that are already underway. Offering examples of new frameworks in which collaboration between government, industry, and higher education institutions can prevent lagging behind in this fast changing environment, this book is a key read for anyone wanting to understand how the world should respond to the radical technological shifts underway on the frontline of higher education.

Smart Citizens in Smart Cities The Fourth Industrial Revolution

An up-to-date guide for using massive amounts of data and novel technologies to design, build, and maintain better systems engineering Systems Engineering in the Fourth Industrial Revolution: Big Data, Novel Technologies, and Modern Systems Engineering offers a guide to the recent

changes in systems engineering prompted by the current challenging and innovative industrial environment called the Fourth Industrial Revolution—INDUSTRY 4.0. This book contains advanced models, innovative practices, and state-of-the-art research findings on systems engineering. The contributors, an international panel of experts on the topic, explore the key elements in systems engineering that have shifted towards data collection and analytics, available and used in the design and development of systems and also in the later life-cycle stages of use and retirement. The contributors address the issues in a system in which the system involves data in its operation, contrasting with earlier approaches in which data, models, and algorithms were less involved in the function of the system. The book covers a wide range of topics including five systems engineering domains: systems engineering and systems thinking; systems software and process engineering; the digital factory; reliability and maintainability modeling and analytics; and organizational aspects of systems engineering. This important resource: Presents new and advanced approaches, methodologies, and tools for designing, testing, deploying, and maintaining advanced complex systems Explores effective evidence-based risk management practices Describes an integrated approach to safety, reliability, and cyber security based on system theory Discusses entrepreneurship as a

multidisciplinary system Emphasizes technical merits of systems engineering concepts by providing technical models Written for systems engineers, Systems Engineering in the Fourth Industrial Revolution offers an up-to-date resource that contains the best practices and most recent research on the topic of systems engineering.

The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success Currency The Fourth Industrial Revolution is changing everything - from the way we relate to each other, to the work we do, the way our economies work, and what it means to be human. We cannot let the brave new world that technology is currently creating simply emerge. All of us need to help shape the future we want to live in. But what do we need to know and do to achieve this? In Shaping the Fourth Industrial Revolution, Klaus Schwab explores how people from all backgrounds and sectors can influence the way that technology transforms our world. Drawing on contributions by more than 200 of the world's leading technology, economic and sociological experts to present a practical guide for citizens, business leaders, social influencers and policy-makers this book outlines the most important dynamics of the technology revolution, highlights important stakeholders that are often overlooked in our discussion of the latest scientific breakthroughs, and explores 12 different technology areas central to the future of humanity. Emerging technologies are not predetermined

forces out of our control, nor are they simple tools with known impacts and consequences. The exciting capabilities provided by artificial intelligence, distributed ledger systems and cryptocurrencies, advanced materials and biotechnologies are already transforming society. The actions we take today - and those we don't - will quickly become embedded in ever-more powerful technologies that surround us and will, very soon, become an integral part of us. By connecting the dots across a range of often-misunderstood technologies, and by exploring the practical steps that individuals, businesses and governments can take, Shaping the Fourth Industrial Revolution helps equip readers to shape a truly desirable future at a time of great uncertainty and change.

Climate Change, The Fourth Industrial Revolution and Public Pedagogies

Routledge

The Fourth Industrial Revolution revolves around cyber-physical systems and artificial intelligence. Little is certain about this new wave of innovation, which leaves industrialists and educators in the lurch without much guidance on adapting to this new digital landscape. Society must become more agile and place a higher emphasis on lifelong learning to master new technologies in order to stay ahead of the changes and overcome challenges to become more globally competitive. Promoting Inclusive Growth in the Fourth Industrial Revolution is a collection of innovative research that focuses on the role of

formal education in preparing students for uncertain futures and for societies that are changing at great speed in terms of their abilities to drive job creation, economic growth, and prosperity for millions in the future. Featuring coverage on a broad range of topics including economics, higher education, and safety and regulation, this book is ideally designed for teachers, managers, entrepreneurs, economists, policymakers, academicians, researchers, students, and professionals in the fields of human resources, organizational design, learning design, information technology, and e-learning.

Procurement 4.0 and the Fourth Industrial Revolution Springer Nature This book covers the overall technology spectrum in AI and the Fourth Industrial Revolution that is set to revolutionize the world as we know it. It is a handbook for CEOs, entrepreneurs, and university VCs, as well as the vast workforce and students with tech or non-tech backgrounds. It covers aspects and case studies from industry, academics, administration, law, finance and accounting, as well as educational technology. The contributors, who are experts in their respective fields and from industry and academia, focus on gesture recognition prototype for specially abled people, jurisprudential approach to artificial intelligence and legal reasoning, automated chatbot for autism spectrum disorder using ai assistance, Big Data analytics and IoT, design of the 3D printed dexterous

prosthetic arm, discerning and demonstrating consumer emotion and surfing behavior to develop personalized ontology, emotionally intelligent AI, role of artificial intelligence in advancement of drug discovery and development, opportunities and challenges of the Fourth Industrial Revolution, legal ethical and policy implications of artificial intelligence, Internet of Health Things for smart healthcare and digital well-being, machine learning and computer vision, a computer vision-based system for automation and industrial applications, AI-IoT in home-based healthcare, and AI in super-precision human brain and spine surgery. Buttressed with comprehensive theoretical, methodological, well-established and validated empirical examples, the volume covers the interests of a very vast audience from basic science to engineering and technology experts and learners. It could eventually work as a textbook for engineering and biomedical students, students of master's programs in science, and researchers. The book also serves common public interest by presenting new methods to improve the quality of life in general, with a better integration into society.

Fourth Industrial Revolution and Business Dynamics IGI Global

The convergence of various fields of technology is changing the fabric of society. Big data and data mining, Internet of Things, artificial intelligence and blockchains are already affecting business models and leading to a social and economic transformations that have

been dubbed by the fourth industrial revolution. Focusing on the framework of intellectual property rights, the contributions to this book analyse how the technical background of this massive transformation affects intellectual property law and policy and how intellectual property is likely to change in order to serve the society. Well-known authorities in intellectual property law offer in-depth chapters on the roles in this revolution of such concepts and actualities as the following: power and role of data as the raw material of the revolution; artificial inventors and creators; trade marks in the dimension of avatars and fictional game characters; concept of inventive step change where the person skilled in the art is virtual; data rights versus intellectual property rights; transparency in the context of big data; interrelations of data, technology transfer and antitrust; self-executable and 'smart' contracts; redefining the balance among exclusive rights, development, technology transfer and contracts; and proprietary information versus the public domain. The chapters also provide complete analyses of how big data changes decision-making processes, how sustainable development requires redefinition, how technology transfer is re-emerging as technology diffusion and how the role of contracts and blockchain as instruments of monitoring and enforcement are being defined. Offering the first in-depth legal commentary and analysis of this highly topical issue, the book approaches the fourth industrial revolution from the

perspectives of technical background, society and law. Its authoritative analysis of how the data-driven economy influences innovation and technology transfer is without peer. It will be welcomed by practicing lawyers in intellectual property rights and competition law, as well as by academics, think tanks and policymakers.

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