The Fourth Industrial Revolution By Klaus Schwab

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.

The Fourth Industrial Revolution is a global development that shows no signs of slowing down. In his book, The Workplace of the Future: The Fourth Industrial Revolution, the Precariat and the Death of Hierarchies, Jon-Arild Johannessen sets a chilling vision of how robots and artificial intelligence will completely disrupt and transform working life. The author contests that once the dust has settled from the Fourth Industrial Revolution, workplaces and professions will be unrecognizable and we will see the rise of a new social class: the precariat. We will live

side by side with the 'working poor' - people who have several jobs, but still can't make ends meet. There will be a small salaried elite consisting of innovation and knowledge workers. Slightly further into the future, there will be a major transformation in professional environments. Johannessen also presents a typology for the precariat, the uncertain work that is created and develops a framework for the working poor, as well as for future innovation and knowledge workers, and sets out a new structure for the social hierarchy. A fascinating and thought-provoking insight into the impact of the Fourth Industrial Revolution, The Workplace of the Future will be of interest to professionals and academics alike. The book is particularly suited to academic courses in management, economy, political science and social sciences. 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.

Cooperation and collaboration at the regional level appears to be at an unprecedented high, yet there are still substantial disparities across national levels in education, political, and economic sectors. Authors explain at what scale policy decisions are taken within the policy environment and who has the authoritative allocation of values.

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.

With the growth and advancement of business and industry, there is a growing need for the advancement of the strategies that manage these modernizations. Adaptation to advancement

is essential for the success of these organizations and using the proper methods to accomplish this essential adaptation is paramount. Organizational Transformation and Managing Innovation in the Fourth Industrial Revolution provides innovative insights into the management of advancements and the implementation of strategies to accommodate these changes. The content within this publication examines social engagement, cyber-journalism, and educational innovation. It is designed for managers, consultants, academicians, researchers, and professionals, and covers topics centered on the growth of businesses and how they change alongside the economy and infrastructure.

This book sets out to explore the emerging consequences of the so called '4th Industrial Revolution for the organisation of work and welfare.

We are living in the middle of a Fourth Industrial Revolution, with new technology leading to dramatic shifts in everything from manufacturing to supply chain logistics. In a lively, developing field of academic, procurement is often neglected. Despite this, procurement plays a vital role, connecting the organization with its ecosystem. At a time of change and economic crisis, a new business model is called for, which this book aims to define. Based on the applications of Industry 4.0 concepts to procurement, this book describes Procurement 4.0 as a method and a set of tools, helping businesses to improve the value of their products, reduce waste, become more flexible, and address the business needs of the future. It will appeal to academics in the area, as well as practitioners.

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.

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.

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 fourth industrial revolution is developing globally, with no geographical centre. It is also taking place at enormous speed. This development will shape the workplaces of the future, which will be entirely different from the workplaces created by the first, second and third industrial revolutions. Industry created the industrial worker. The knowledge society will create a new type of "industrial worker", the knowledge worker. While the third industrial revolution was concerned with the digitalization of work, in the fourth industrial revolution, robots will bring about the informatization of work. Many of these robots will be systematically connected, such that they can obtain updated information and learn from their own and others' mistakes. The way we work, where we work, what we work on, and our relationships with our colleagues and employers are all in a state of change. The workplace of the future will not necessarily be a fixed geographical location, but may be geographically distributed and functionally divided. In his book, Jon-Arild Johannessen argues that a "perfect" social storm

occurs when inequality grows at a catastrophic rate, unemployment increases, job security is threatened for a growing number and robotization takes over even the most underpaid jobs. Thus, the ingredients for a perfect social storm will be brought forward by cascades of innovations that will most likely lead to economic and social crises and he argues that it is reasonable to assume that it will only take a small spark for this social storm to develop into a social revolution.
In the last thirty years, there has been an industrial revolution that has changed the world and given rise to an innovation economy that is changing the face of organizational logic. Here, Jon-Arild Johannessen shows how the knowledge worker emerges to become the new working class of the fourth industrial revolution.
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.

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.

In the context of the Fourth Industrial Revolution, a world of continuous alterations is glimpsed where science and technology are at the base of economic competitiveness and where innovation plays a strategic role in global competition, so that they are forced to cover a series of requirements to compete successfully in an increasingly globalized economy, including high investments in both education and research. Along these lines, the formation of mathematical learning is important because it is oriented towards the development of a set of skills with the aim of resolving situations of daily and professional lives. It focuses on the acquisition of employing the different ways of representing information in the form of models, constructions, and graphs to determine the best decision making. In this sense, it includes the mastery of the handling of numbers, measures, and structures to carry out the interpretation of operations and representations of a quantitative nature on personal and professional situations. For a society to favor innovation, the use of mathematical information is an essential condition that allows the development of creativity and analysis of information. Mathematics education plays a vital role in this development.

Developing Mathematical Literacy in the Context of the Fourth Industrial Revolution studies the formation of mathematical abilities in the context of the Fourth Industrial Revolution regarding its development of both teaching and learning strategies, as well as the use of ICT and its use in the development of this discipline in students. It is important that teachers of any educational level reorient their teaching strategies and their role as educators. Therefore, the chapters discuss up-to-date and relevant information on teaching and didactic tasks in the subject of mathematics. This book highlights mathematical pedagogies, ICT in mathematics learning, teacher training, and classroom strategies for mathematics. It is intended for teachers, pedagogical advisors, business trainers, higher education staff, administrators, teacher educators, practitioners, stakeholders, researchers, academicians, and students interested in mathematical literacy in the fourth industrial revolution.

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. 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 industrial model is changing at a vertigo speed and in this book we discover the most innovative technology that makes it possible with the aim that students and new professionals can enrich their knowledge and contribute innovative ideas to their future business. With the reading of this book, written in a language understandable to non-specialists, we will get to know the technology that makes possible the fourth Industrial Revolution, the changes it will generate and the benefits of its application.IoT, AGV, RFID, RTLS, Additive Manufacturing, Collaborative Robots, PLM, Digital Twin, CPS, etc. ... are some KETs (key enabling technologies) that we are going to show you.

As the Fourth Industrial Revolution barrels forward and the pace of disruption accelerates, all organizations must operate with agility. But this urgent priority, now

widely-accepted by senior leaders, presents a major challenge: In business, government, and warfare, agility is a buzzword. There is no common understanding of what it means, or of what it takes to be consistently agile. In this groundbreaking book, Leo Tilman and Charles Jacoby offer the first comprehensive assessment of the fundamental nature of organizational agility and then describe the essential leadership practices for achieving it. They show that agility is far superior to mere speed or adaptability. Pinpointing its distinctive features, they define agility as the ability to detect and assess changes in the competitive environment in real time and then take decisive action. They demonstrate that agility enables an organization to outmaneuver competitors by seizing opportunities; better defending against threats; and acting as a well-orchestrated collective of teams that are empowered to take disciplined initiative. Combining their personal experience of building and leading agile organizations, Tilman in the realm of business and finance and Jacoby in battlefield command and homeland security, they present a powerful approach to fostering agility up and down an organization, and out to its very edges. They show how to detect opportunities and threats by fighting for risk intelligence; how to pierce through complexity and unleash creativity by nurturing a culture of honesty and trust; how to meld top-down vision and planning with decentralized execution; and how to enhance strategy by recognizing organizations as dynamic portfolios of risk. In a world where leaders and their teams must brave the unknown and step confidently forward – or risk extinction – Agility

provides a vital roadmap for seizing the unprecedented possibilities of the new age and dominating change instead of being dominated by it.

Climate Change, The Fourth Industrial Revolution and Public Pedagogies: The Case for Ecosocialism uses public pedagogy as a theoretical lens to examine climate change emergency and presents a solution to the issue in ecosocialism. The book addresses the climate's relationship with capitalism and the role of activism in highlighting the climate change emergency. With respect to the Fourth Industrial Revolution, Cole assesses the pro-capitalist arguments that this revolution can be considered a progressive force and critiques them from a Marxist perspective. A case is made for ecosocialism, a form of socialism that is informed by feminism, inclusivity and real democracy. Ecosocialism, it is argued, can address climate change destruction and harness the potential fruits of the Fourth Industrial Revolution for the good of all. The book ends by addressing the other great threat to civilisation alongside climate change, with a postscript providing some final words of warning about the dual perils of climate change and nuclear warfare. This highly topical book will be of interest to scholars, postgraduate students and researchers, as well as to advanced undergraduate students in the fields of environmental studies, pedagogy, and sociology. It will also appeal to all readers who are concerned with the onward march of climate change destruction.

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.

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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. This book examines the concept of the fourth industrial revolution and its potential impact on vocational education and training. Broadly located in a framework rooted in critical/radical theory, the book argues that the affordance of technologies surrounding

the fourth industrial revolution are constrained by their location within a neoliberal, if not capitalist, logic. Thus, the impact of this revolution will be experienced differently across European regions as well as low and middle income economies. In order to break this impasse, this book calls for a politics based on non-reformist reforms, premised on an aspiration towards a socially just society that transcends capitalism.

Avoiding prejudice will be critical to economic success in the fourth industrial revolution. It is not the new and innovative technology that will matter in the next decade, but what we do with it. Using technology properly, with diverse decision making, is the difference between success and failure in a changing world. This will require putting the right person in the right job at the right time. Prejudice stops that happening. Profit and Prejudice takes us through the relationship between economic success and prejudice in labour markets. It starts with the major changes that occur in periods of economic upheaval. These changes tend to be unpopular and complex – and complexity encourages people to turn to the simplistic arguments of 'scapegoat economics' and prejudice. Some of the changes of the fourth industrial revolution will help fight prejudice, but some will make it far worse. The more prejudice there is, the harder it will be for companies and countries to profit from the changes ahead. Profit is not the main argument against prejudice, but can certainly help fight it. This book tells a story of the

damage that prejudice can do. Using economics without jargon, students, investors and the public will be able to follow the narrative and see how prejudice can be opposed. Prejudice is bad for business and the economy. Profit and Prejudice explains why.

The purpose of this book is to provide an overview of the new industrial revolution: the "Industry 4.0." Globalization and competitiveness are forcing companies to review and improve their production processes. Industry 4.0 is a revolution that involves many different sectors and is still evolving. It represents the integration of tools already used in the past (big data, cloud, robot, 3D printing, simulation, etc.) that are now connected to a smart network by transmitting digital data at high speeds. The implementation of a 4.0 system represents a huge change for companies, which are faced with big investments. The idea of the book is to present practices, challenges, and opportunities related to the Industry 4.0. This book is intended to be a useful resource for anyone who deals with this issue.

Provides executive leadership teams with the information, tools, and advice they need to lead their organizations into the "future of work," characterized by transformative, smart, and connected technologies already under way, including artificial intelligence, the internet of things, and automation. • Fully unpacks what

4IR and the rise of new industries will require from leaders • Illuminates the central role played by behavioral economics in the 4IR era, rather than just the macroeconomic implications for society of the convergence of the megatrends under way • Introduces tools for helping leaders to prepare themselves and assess their organization's readiness for managing high-velocity change • Provides a roadmap for rethinking how learning and development are fostered in "always-on" learning organizations of the future • Clarifies the critical role of public-private collaborations in meeting the development needs of the future of work • Introduces discernment as a strategy for managing future-of-work ethical decisions that inevitably accompany the integration of AI in the work force This book helps decision makers grasp the importance, and applicability to business, of the new technologies and extended connectivity of systems that underlie what is becoming known as the Fourth Industrial Revolution: technologies and systems such as artificial intelligence, machine learning, 3D printing, the internet of things, virtual and augmented reality, big data and mobile networks. The WEF, OECD and UN all agree that humanity is on the cusp of the Fourth Industrial Revolution. As intelligent systems become integrated into every aspect of our lives this revolution will induce cultural and societal change of a magnitude hitherto unforeseen. These technologies challenge the values,

customer experience and business propositions that have been the mainstay of almost every business and organization in existence. By redefining and encapsulating new value structures with emerging intelligent technologies, new innovative models are being created, and brought to market. Understanding the potential and impact of these changes will be a fundamental leadership requirement over the coming years. Skilton and Hovsepian provide decision makers with practical, independent and authoritative guidance to help them prepare for the changes we are all likely to witness due to the rapid convergence of technological advances. In short, bite-sized, nuggets, with frameworks supported by a deep set of practical and up-to-the-minute case studies, they shine light on the new business models and enterprise architectures emerging as businesses seek to build strategies to thrive within this brave new world. This book applies cutting-edge economic analysis and social science to unpack the rich complexities and paradoxes of the Fourth Industrial Revolution. The book takes the reader on a bold, refreshing, and informative tour through its technological drivers, its profound impact on human ecosystems, and its potential for sustainable human development. The overarching message to the reader is that the Fourth Industrial Revolution is not merely something to be feared or survived; rather, this dramatic collision of technologies, disciplines, and ideas

presents a magnificent opportunity for a generation of new pioneers to rewrite "accepted rules" and find new avenues to empower billions of people to thrive. This book will help readers to discern the difference between disruption and transformation. The reader will come away from this book with a deeply intuitive and highly contextual understanding of the core technological advances transforming the world as we know it. Beyond this, the reader will clearly appreciate the future impacts on our economies and social structures. Most importantly, the reader will receive an insightful and actionable set of guidelines to assist them in harnessing the Fourth Industrial Revolution so that both they and their communities may flourish. The authors do not primarily seek to make prescriptions for government policy, but rather to speak directly to people about what they can do for themselves, their families, and their communities to be future-proofed and ready to adapt to life in a rapidly evolving world ecosystem. Artificial intelligence (AI) technologies are transforming economies, societies, and geopolitics. Enabled by the exponential increase of data that is collected, transmitted, and processed transnationally, these changes have important implications for international economic law (IEL). This volume examines the dynamic interplay between AI and IEL by addressing an array of critical new questions, including: How to conceptualize, categorize, and analyze AI for

purposes of IEL? How is AI affecting established concepts and rubrics of IEL? Is there a need to reconfigure IEL, and if so, how? Contributors also respond to other cross-cutting issues, including digital inequality, data protection, algorithms and ethics, the regulation of AI-use cases (autonomous vehicles), and systemic shifts in e-commerce (digital trade) and industrial production (fourth industrial revolution). This title is also available as Open Access on Cambridge Core. This book provides readers with an understanding of various concepts, benefits, and practices that the adoption of Fourth Industrial Revolution (4IR) technolo>gies can bring when working towards sustainable construction goals. As digitalization continues to advance rapidly, the pressures on stakeholders in the architecture, engineering, construction, and operation (AECO) industry to revamp and restructure their activities and outputs become increasingly prev>alent. This research book explains the importance of various digital tools and principles to achieve sustainable construction projects. It adopts various stand>ards and concepts to highlight how 4IR technologies could assist and accelerate construction sustainability. It is the first book to link construction management with various digital tools to enhance construction projects' sustainability. It also provides an in-depth insight into the concept of sustainable construction 4.0 across both developing and developed countries for construction

professionals, sustainability experts, researchers, educators, and other stakeholders.The book can be adopted as a research guide, framework, and reference on sustainable construction, the concept of sustainable projects, digitalization in the construction industry, and the 4IR.

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. This book focuses on the implementation of AI for growing business, and the book includes research articles and expository papers on the applications of AI on decision-making, health care, smart universities, public sector and digital government, FinTech, and RegTech. Artificial Intelligence (AI) is a vital and a fundamental driver for the Fourth Industrial Revolution (FIR). Its influence is observed at homes, in the businesses and in the public spaces. The embodied best of AI reflects robots which drive our cars, stock our warehouses, monitor our behaviors and warn us of our health, and care for our young children. Some researchers also discussed the role of AI in the current COVID-19 pandemic, whether in the health sector, education, and others. On all of these, the researchers discussed the impact of AI on decision-making in those vital sectors of the economy.

Communication between man and machine is vital to completing projects in the current day and age. Without this constant connectiveness as we enter an era of big data, project completion will result in utter failure. Agile Approaches for Successfully Managing and Executing Projects in the Fourth Industrial Revolution addresses changes wrought by Industry 4.0 and its effects on project management as well as adaptations and adjustments that will need to be made within project life cycles and project risk management. Highlighting such topics as agile planning, cloud projects, and organization structure, it is designed for project managers, executive management, students, and academicians.

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.

This book tackles the ethical problems of the "Fourth Industrial Revolution" (4IR) and offers readers an overview of the ethical challenges connected to Artificial Intelligence (AI), encryption and the finance industry. It specifically focuses on the situation of females in these industries, from women lawyers, judges, attorneys-at-law, investors and bankers, to portfolio managers, solicitors and civil servants. As the 4IR is more than "just" a technology-driven transformation, this book is a call to policymakers and business leaders to harness new technologies in order to create a more inclusive, human-centered future. It offers many practical cases of proactive change agents, and offers solutions to the ethical challenges in connection with implementing revolutionary disruptive products that often eliminate the intermediary. In addition, the book addresses sustainable finance in startups. In this context, education, training, agility and life-long learning in financial literacy are some of the key solutions highlighted here. The respective contributors supply a diverse range of perspectives, so as to promote a multi-stakeholder approach.

Why and how will the fourth industrial revolution impact great power politics? Here, Glenn Diesen utilizes a neoclassical approach to great power politics to assess how far

the development of AI, national and localized technological ecosystems and cyber-warfare will affect great power politics in the next century. The reliance of modern economies on technological advances, Diesen argues, also compels states to intervene radically in economics and the lives of citizens, as automation radically alters the economies of tomorrow. A groundbreaking attempt to contextualize the fourth industrial revolution, and analyse its effects on politics and international relations.

The book explores technological advances in the fourth industrial revolution (4IR), which is based on a variety of technologies such as artificial intelligence, Internet of Things, machine learning, big data, additive printing, cloud computing, and virtual and augmented reality. Critically analyzing the impacts and effects of these disruptive technologies on various areas, including economics, society, business, government, labor, law, and environment, the book also provides a broad overview of 4IR, with a focus on technologies, to allow readers to gain a deeper understanding of the recent advances and future trajectories. It is intended for researchers, practitioners, policy-makers and industry leaders.

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