

## Big Data Now Current Perspectives From O'Reilly Radar Ebook Team

This book describes the current and most probable future wireless security solutions. The focus is on the technical discussion of existing systems and new trends like Internet of Things (IoT). It also discusses existing and potential security threats, presents methods for protecting systems, operators and end-users, describes security systems attack types and the new dangers in the ever-evolving Internet. The book functions as a practical guide describing the evolution of the wireless environment, and how to ensure the fluent continuum of the new functionalities, whilst minimizing the potential risks in network security.

This collection represents the full spectrum of data-related content we've published on O'Reilly Radar over the last year. Mike Loukides kicked things off in June 2010 with "What is data science?" and from there we've pursued the various threads and themes that naturally emerged. Now, roughly a year later, we can look back over all we've covered and identify a number of core data areas: Data issues -- The opportunities and ambiguities of the data space are evident in discussions around privacy, the implications of data-centric industries, and the debate about the phrase "data science" itself. The application of data: products and processes -- A "data product" can emerge from virtually any domain, including everything from data startups to established enterprises to media/journalism to education and research. Data science and data tools -- The tools and technologies that drive data science are of course essential to this space, but the varied techniques being applied are also key to understanding the big data arena.

Explore multiple practical and theoretical dimensions of needs assessment. This volume focuses exclusively on this essential topic for guiding decisions—examining subjects such as: the importance of defining needs, implementing assessments in public and private-sector organizations, aligning needs with assets and capacity assessments, how assessments factor into meaningful change at the organizational and society levels how to apply needs assessments in culturally diverse contexts conducting international needs assessments, and the impact of technologies on needs assessment methods. This issue will help professionals within public and private organizations conduct useful assessments, ones leading to results that can be applied in decisions. This is the 144th issue in the New Directions for Evaluation series from Jossey-Bass. It is an official publication of the American Evaluation Association.

In recent years, technological advances have led to significant developments within a variety of business applications. In particular, data-driven research provides ample opportunity for enterprise growth, if utilized efficiently. Privacy and Security Policies in Big Data is a pivotal reference source for the latest research on innovative concepts on the management of security and privacy analytics within big data. Featuring extensive coverage on relevant areas such as kinetic knowledge, cognitive analytics, and parallel computing, this publication is an ideal resource for professionals, researchers, academicians, advanced-level students, and technology developers in the field of big data.

The advent of digital technologies has changed the news and publishing industries drastically. While shrinking newsrooms may be a concern for many, journalists and publishing professionals are working to reorient their skills and capabilities to employ technology for the purpose of better understanding and engaging with their audiences. Contemporary Research Methods and Data Analytics in the News Industry highlights the research behind the innovations and emerging practices being implemented within the journalism industry. This crucial, industry-shattering publication focuses on key topics in social media and video streaming as a new form of media communication as well the application of big data and data analytics for collecting information and drawing conclusions about the current and future state

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of print and digital news. Due to significant insight surrounding the latest applications and technologies affecting the news industry, this publication is a must-have resource for journalists, analysts, news media professionals, social media strategists, researchers, television news producers, and upper-level students in journalism and media studies. This timely industry resource includes key topics on the changing scope of the news and publishing industries including, but not limited to, big data, broadcast journalism, computational journalism, computer-mediated communication, data scraping, digital media, news media, social media, text mining, and user experience.

Decision makers, such as government officials, need to better understand human activity in order to make informed decisions. With the ability to measure and explore geographic space through the use of geospatial intelligence data sources including imagery and mapping data, they are better able to measure factors affecting the human population. As a broad field of study, geospatial research has applications in a variety of fields including military science, environmental science, civil engineering, and space exploration. *Geospatial Intelligence: Concepts, Methodologies, Tools, and Applications* explores multidisciplinary applications of geographic information systems to describe, assess, and visually depict physical features and to gather data, information, and knowledge regarding human activity. Highlighting a range of topics such as geovisualization, spatial analysis, and landscape mapping, this multi-volume book is ideally designed for data scientists, engineers, government agencies, researchers, and graduate-level students in GIS programs.

We are now acutely aware, as if all of the sudden, that data matters enormously to how we live. How did information come to be so integral to what we can do? How did we become people who effortlessly present our lives in social media profiles and who are meticulously recorded in state surveillance dossiers and online marketing databases? What is the story behind data coming to matter so much to who we are? In *How We Became Our Data*, Colin Koopman excavates early moments of our rapidly accelerating data-tracking technologies and their consequences for how we think of and express our selfhood today. Koopman explores the emergence of mass-scale record keeping systems like birth certificates and social security numbers, as well as new data techniques for categorizing personality traits, measuring intelligence, and even racializing subjects. This all culminates in what Koopman calls the “informational person” and the “informational power” we are now subject to. The recent explosion of digital technologies that are turning us into a series of algorithmic data points is shown to have a deeper and more turbulent past than we commonly think. Blending philosophy, history, political theory, and media theory in conversation with thinkers like Michel Foucault, Jürgen Habermas, and Friedrich Kittler, Koopman presents an illuminating perspective on how we have come to think of our personhood—and how we can resist its erosion.

Air traffic management (ATM) comprises a highly complex socio-technical system that keeps air traffic flowing safely and efficiently, worldwide, every minute of the year. Over the last few decades, several ambitious ATM performance improvement programmes have been undertaken. Such programmes have mostly delivered local technological solutions, whilst corresponding ATM performance improvements have fallen short of stakeholder expectations. In hindsight, this can be substantially explained from a complexity science perspective: ATM is simply too complex to address through classical approaches such as system engineering and human factors. In order to change this, complexity science has to be embraced as ATM's 'best friend'. The applicability of complexity science paradigms to the analysis and modelling of future operations is driven by the need to accommodate long-term air traffic growth within an already-saturated ATM infrastructure. *Complexity Science in Air Traffic Management* is written particularly, but not exclusively, for transport researchers, though it also has a complementary appeal to practitioners, supported through the frequent references made to practical examples

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and operational themes such as performance, airline strategy, passenger mobility, delay propagation and free-flight safety. The book should also have significant appeal beyond the transport domain, due to its intrinsic value as an exposition of applied complexity science and applied research, drawing on examples of simulations and modelling throughout, with corresponding insights into the design of new concepts and policies, and the understanding of complex phenomena that are invisible to classical techniques.

Estamos na era dos dados. Não importa qual seja a sua área de atuação, uma palavra atualmente em evidência é: Big Data. Podemos encontrar casos de uso em que esse conceito permitiu a redução do número de fraudes, redução de custos na produção, eficiência energética, aumento de segurança, entre outros benefícios tão almejados em diversos domínios. Muito embora o interesse esteja em alta, Big Data ainda é um termo incipiente, gerando incertezas sobre sua definição, características, aplicabilidade e desafios. Como obter dados de diferentes fontes? Como extrair valor a partir dos dados? Qual a infraestrutura necessária para criar uma solução de Big Data? Quais habilidades são necessárias para atuar com Big Data em seu projeto? Neste livro, Rosangela Marquesone apresenta as tecnologias e soluções de Big Data, em uma abordagem conceitual que detalha as características e capacidades de cada uma delas. Você verá as principais fases de um projeto de Big Data, desde a captura, o armazenamento, o processamento, análise, até a visualização de dados.

An exchange on education ideas has shaped the transatlantic discourse in education for a long time. Over the past two decades education science has increasingly become networked internationally. Since 2015, the Office for International Cooperation in Education at DIPF | Leibniz Institute for Research and Information in Education has organized international sessions on education research at the Annual Meetings of the American Educational Research Association, thus providing a floor for transatlantic exchange on current research topics. The volume gives an overview of the transatlantic activities in education research with regard to these sessions representing a collection of topics ranging from school development over the use of large scale assessment and digital data in education to questions related to migration and public education or the economization of education. At the same time the volume offers a reflection on the assets and obstacles of international exchange.

This book considers all aspects of managing the complexity of Multimedia Big Data Computing (MMBD) for IoT applications and develops a comprehensive taxonomy. It also discusses a process model that addresses a number of research challenges associated with MMBD, such as scalability, accessibility, reliability, heterogeneity, and Quality of Service (QoS) requirements, presenting case studies to demonstrate its application. Further, the book examines the layered architecture of MMBD computing and compares the life cycle of both big data and MMBD. Written by leading experts, it also includes numerous solved examples, technical descriptions, scenarios, procedures, and algorithms.

This book focuses on the different aspects of handling big data in healthcare. It

showcases the current state-of-the-art technology used for storing health records and health data models. It also focuses on the research challenges in big data acquisition, storage, management and analysis.

The book describes the emergence of big data technologies and the role of Spark in the entire big data stack. It compares Spark and Hadoop and identifies the shortcomings of Hadoop that have been overcome by Spark. The book mainly focuses on the in-depth architecture of Spark and our understanding of Spark RDDs and how RDD complements big data's immutable nature, and solves it with lazy evaluation, cacheable and type inference. It also addresses advanced topics in Spark, starting with the basics of Scala and the core Spark framework, and exploring Spark data frames, machine learning using Mllib, graph analytics using Graph X and real-time processing with Apache Kafka, AWS Kinesis, and Azure Event Hub. It then goes on to investigate Spark using PySpark and R. Focusing on the current big data stack, the book examines the interaction with current big data tools, with Spark being the core processing layer for all types of data. The book is intended for data engineers and scientists working on massive datasets and big data technologies in the cloud. In addition to industry professionals, it is helpful for aspiring data processing professionals and students working in big data processing and cloud computing environments. Our world is becoming ever more data-driven, transforming how business is conducted, governance enacted, and knowledge produced. Yet, the nature of data and the scope and implications of the changes taking place are not always clear. The Data Revolution is a must read for anyone interested in why data have become so important in the contemporary era. Thoroughly updated, including ten new chapters, the book provides an accessible and comprehensive: introduction to thinking conceptually about the nature of data and the field of critical data studies overview of big data, open data and data infrastructures analysis of the utility and value of big and open data for research, business, government and civil society assessment of the concerns and risks in a data-driven world and how to prevent and mitigate them.

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. *Big Data: Concepts, Methodologies, Tools, and Applications* is a multi-volume compendium of research-based perspectives and solutions within the realm of large-scale and complex data sets. Taking a multidisciplinary approach, this publication presents exhaustive coverage of crucial topics in the field of big data including diverse applications, storage solutions, analysis techniques, and methods for searching and transferring large data sets, in addition to security issues. Emphasizing essential research in the field of data science, this publication is an ideal

reference source for data analysts, IT professionals, researchers, and academics.

Unique prospective on the big data analytics phenomenon for both business and IT professionals The availability of Big Data, low-cost commodity hardware and new information management and analytics software has produced a unique moment in the history of business. The convergence of these trends means that we have the capabilities required to analyze astonishing data sets quickly and cost-effectively for the first time in history. These capabilities are neither theoretical nor trivial. They represent a genuine leap forward and a clear opportunity to realize enormous gains in terms of efficiency, productivity, revenue and profitability. The Age of Big Data is here, and these are truly revolutionary times. This timely book looks at cutting-edge companies supporting an exciting new generation of business analytics. Learn more about the trends in big data and how they are impacting the business world (Risk, Marketing, Healthcare, Financial Services, etc.) Explains this new technology and how companies can use them effectively to gather the data that they need and glean critical insights Explores relevant topics such as data privacy, data visualization, unstructured data, crowd sourcing data scientists, cloud computing for big data, and much more.

Doing research is an ever-changing challenge for social scientists. This challenge is harder than ever today as current societies are changing quickly and in many, sometimes conflicting, directions. Social phenomena, personal interactions, and formal and informal relationships are becoming more borderless and disconnected from the anchors of the offline “reality.” These dynamics are heavily marking our time and are suggesting evolutionary challenges in the ways we know, interpret, and analyze the world. Internet and computer-mediated communication (CMC) is being incorporated into every aspect of daily life, and social life has been deeply penetrated by the internet. This is due to recent technological developments that increase the scope and range of online social spaces and the forms and time of participation such as Web 2.0, which widened the opportunities for user-generated content, the emergence of an “internet of things,” and of ubiquitous mobile devices that make it possible to always be connected. This implies an adjustment to epistemological and methodological stances for conducting social research and an adaption of traditional social research methods to the specificities of online interactions in the digital society. The Handbook of Research on Advanced Research Methodologies for a Digital Society covers the different strands of methods most affected by the change in a digital society and develops a broader theoretical reflection on the future of social research in its challenge to always be fitting, suitable, adaptable, and pertinent to the society to be studied. The chapters are geared towards unlocking the future frontiers and potential for social research in the digital society. They include theoretical, epistemological, and ontological reflections about the digital research methods as well as innovative methods and tools to collect, analyze, and

interpret data. This book is ideal for social scientists, practitioners, librarians, researchers, academicians, and students interested in social research methodology and its developments in the digital scenario.

“In this comprehensive book, Professor Randy Deutsch has unlocked and laid bare the twenty-first century codice nascosto of architecture. It is data. Big data. Data as driver. . . This book offers us the chance to become informed and knowledgeable pursuers of data and the opportunities it offers to making architecture a wonderful, useful, and smart art form.” —From the Foreword by James Timberlake, FAIA  
Written for architects, engineers, contractors, owners, and educators, and based on today’s technology and practices, *Data-Driven Design and Construction: 25 Strategies for Capturing, Applying and Analyzing Building Data* addresses how innovative individuals and firms are using data to remain competitive while advancing their practices. seeks to address and rectify a gap in our learning, by explaining to architects, engineers, contractors and owners—and students of these fields—how to acquire and use data to make more informed decisions. documents how data-driven design is the new frontier of the convergence between BIM and architectural computational analyses and associated tools. is a book of adaptable strategies you and your organization can apply today to make the most of the data you have at your fingertips. *Data-Driven Design and Construction* was written to help design practitioners and their project teams make better use of BIM, and leverage data throughout the building lifecycle.

Education programs in social entrepreneurship helps to create and fill jobs devoted to developing the local economy, which has become a dual transfer strategy by which a virtuous circle occurs between a retrofitted educational system based on social entrepreneurship, and vocational students who are highly entrepreneurial. *The Handbook of Research on Social Entrepreneurship and Solidarity Economics* focuses on practical experience and theoretical models for popularizing the concept of social entrepreneurship as a critical element of economic growth. Emphasizing the ways in which social entrepreneurship benefits developing regions, small and medium enterprises, and low-income communities, this handbook of research is a pivotal reference source for professionals, academics, and graduate-level students in the fields of economics, business administration, sociology, education, politics, and international relations. The analysis of job requirements is crucial for companies and job seekers. The thesis deals with developing a web content mining process for analyzing job requirements in online job advertisements. It combines methods from big data analytics, knowledge discovery in databases, data mining, web mining, and natural language processing. In the future, the web content mining process can be integrated into an overarching recruiting 4.0 framework to support decision-making processes.

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in June 2010 with “What is data science?” and from there we’ve pursued the various threads and themes that naturally emerged. Now, roughly a year later, we can look back over all we’ve covered and identify a number of core data areas: Data issues -- The opportunities and ambiguities of the data space are evident in discussions around privacy, the implications of data-centric industries, and the debate about the phrase “data science” itself. The application of data: products and processes – A “data product” can emerge from virtually any domain, including everything from data startups to established enterprises to media/journalism to education and research. Data science and data tools -- The tools and technologies that drive data science are of course essential to this space, but the varied techniques being applied are also key to understanding the big data arena. The business of data – Take a closer look at the actions connected to data -- the finding, organizing, and analyzing that provide organizations of all sizes with the information they need to compete. Technology management education and business education are visibly intertwined in the current educational system. Certain efforts that have taken place in the recent past are the interinstitutional discourse around the world. Technology management is a dynamic and evolving profession, driven by changes in technology, globalization, sustainability, and the increasing importance of the service economy. The Handbook of Research on Future Opportunities for Technology Management Education is a comprehensive reference book that enables readers to comprehend the trends in technological changes and the need to orient business education and technology management in workplaces. The book serves to support with the formation and implementation of appropriate policies for technology management. Covering topics such as big data analytics, cloud computing adoption, and massive open online courses (MOOCs), this text is an essential resource for managers, technologists, teachers, executives, instructional designers, libraries, university researchers, students, faculty, and industry taught leaders. This Springer Brief provides a comprehensive overview of the background and recent developments of big data. The value chain of big data is divided into four phases: data generation, data acquisition, data storage and data analysis. For each phase, the book introduces the general background, discusses technical challenges and reviews the latest advances. Technologies under discussion include cloud computing, Internet of Things, data centers, Hadoop and more. The authors also explore several representative applications of big data such as enterprise management, online social networks, healthcare and medical applications, collective intelligence and smart grids. This book concludes with a thoughtful discussion of possible research directions and development trends in the field. Big Data: Related Technologies, Challenges and Future Prospects is a concise yet thorough examination of this exciting area. It is designed for researchers and professionals interested in big data or related research. Advanced-level students in computer science and electrical engineering will also

find this book useful.

Web service technologies are redefining the way that large and small companies are doing business and exchanging information. Due to the critical need for furthering automation, engagement, and efficiency, systems and workflows are becoming increasingly more web-based. *Web Services: Concepts, Methodologies, Tools, and Applications* is an innovative reference source that examines relevant theoretical frameworks, current practice guidelines, industry standards and standardization, and the latest empirical research findings in web services. Highlighting a range of topics such as cloud computing, quality of service, and semantic web, this multi-volume book is designed for computer engineers, IT specialists, software designers, professionals, researchers, and upper-level students interested in web services architecture, frameworks, and security.

*Digital Media: Human-Technology Connection* examines what it is like to be alive in today's technologically textured world and showcases specific digital media technologies that makes this kind of world possible. So much of human experience occurs through digital media that it is time to pause and consider the process and proliferation of digital consumption and humanity's role in it through an interdisciplinary array of sources from philosophy, media studies, film studies, media ecology and philosophy of technology. When placed in the interpretive lens of artifact, instrument, and tool, digital media can be studied in a uniquely different way, as a kind of technology that pushes the boundaries on production, distribution and communication and alters the way humans and technology connect with each other and the world. The book is divided into two sections to provide overarching definitions and case study specifics. Section one, *Raw Materials*, examines pertinent concepts like digital media, philosophy of technology, phenomenology and postphenomenology by author Stacey O Irwin. In Section Two, *Feeling the Weave*, Irwin uses conversations with digital media users and other written materials along with the postphenomenological framework to explore nine empirical cases that focus on deep analysis of screens, sound, photo manipulation, data-mining, aggregate news and self-tracking. Postphenomenological concepts like multistability, variational theory, microperception, macrop perception, embodiment, technological mediation, and culture figure prominently in the investigation. The aim of the book is to recognize that digital media technologies and the content it creates and proliferates are not neutral. They texture the world in multiple and varied ways that transform human abilities, augment experience and pattern the world in significant and comprehensive ways.

The *Big Data Now* anthology is relevant to anyone who creates, collects or relies upon data. It's not just a technical book or just a business guide. Data is ubiquitous and it doesn't pay much attention to borders, so we've calibrated our coverage to follow it wherever it goes. In the first edition of *Big Data Now*, the O'Reilly team tracked the birth and early development of data tools and data

science. Now, with this second edition, we're seeing what happens when big data grows up: how it's being applied, where it's playing a role, and the consequences -- good and bad alike -- of data's ascendance. We've organized the second edition of Big Data Now into five areas: Getting Up to Speed With Big Data -- Essential information on the structures and definitions of big data. Big Data Tools, Techniques, and Strategies -- Expert guidance for turning big data theories into big data products. The Application of Big Data -- Examples of big data in action, including a look at the downside of data. What to Watch for in Big Data -- Thoughts on how big data will evolve and the role it will play across industries and domains. Big Data and Health Care -- A special section exploring the possibilities that arise when data and health care come together.

Recent advances in internet architecture have led to the advent and subsequent explosion of cloud computing technologies, providing businesses with a powerful toolbox of collaborative digital resources. These technologies have fostered a more flexible, decentralized approach to IT infrastructure, enabling businesses to operate in a more agile fashion and on a globalized scale. Enterprise Management Strategies in the Era of Cloud Computing seeks to explore the possibilities of business in the cloud. Targeting an audience of research scholars, students, software developers, and business professionals, this premier reference source provides a cutting-edge look at the exciting and multifaceted relationships between cloud computing, software virtualization, collaborative technology, and business infrastructure in the 21st Century.

Vast amounts of digital data are now generated daily by people as they go about their lives, yet social researchers are struggling to exploit it. At the same time, the challenges faced by society in the 21st century are growing ever more complex, and demands research that is bigger in scale, more collaborative and multi-disciplinary than ever before. This cutting-edge volume provides an accessible introduction to innovative digital social research tools and methods that harness this 'data deluge' and successfully tackle key research challenges.

Contributions from leading international researchers cover topics such as: Qualitative, quantitative and mixed methods research Data management Social media and social network analysis Modeling and simulation Survey methods Visualizing social data Ethics and e-research The future of social research in the digital age This vibrant introduction to innovative digital research methods is essential reading for anyone conducting social research today.

Virtual and augmented reality is the next frontier of technological innovation. As technology exponentially evolves, so do the ways in which humans interact and depend upon it. Virtual and Augmented Reality: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on the trends, techniques, and uses of virtual and augmented reality in various fields, and examines the benefits and challenges of these developments. Highlighting a range of pertinent topics, such as human-computer interaction, digital self-identity, and virtual reconstruction, this multi-volume book is ideally

designed for researchers, academics, professionals, theorists, students, and practitioners interested in emerging technology applications across the digital plane.

A collection of blog posts written for oreilly.com organized around six key themes: careers in data; tools and architecture for big data; intelligent real-time applications; cloud infrastructure; machine learning, models and training; deep learning and AI. Cf. Introduction.

This e-book integrates all aspects of medical care relevant to worker compensation. It explains benefits of the application of evidence-based approaches to worker compensation care. Improved outcomes of such approaches include less risky treatments, faster healing, and good return to work experience. It also points towards designing a better health care system with a focus on the economy, healthcare policy and change, and growing innovation in medical practice. The e-book should serve as a significantly important reference tool for several working professionals in healthcare systems as well for as students and trainees.

We are living in a cyber society. Mobile devices, social media, the Internet, crime cameras, and other diverse sources can be pulled together to form massive datasets, known as big data, which make it possible to learn things we could not begin to comprehend otherwise. While private companies are using this macroscopic tool, policy-makers and evaluators have been slower to adopt big data to make and evaluate public policy. *Cyber Society, Big Data, and Evaluation* shows ways big data is now being used in policy evaluation and discusses how it will transform the role of evaluators in the future. Arguing that big data will play a permanent and growing role in policy evaluation, especially since results may be delivered almost in real time, the contributors declare that the evaluation community must rise to the challenge or risk being marginalized. This volume suggests that evaluators must redefine their tools in relation to big data, obtain competencies necessary to work with it, and collaborate with professionals already experienced in using big data. By adding evaluators' expertise, for example, in theory-driven evaluation, using repositories, making value judgements, and applying findings, policy-makers and evaluators can come to make better-informed decisions and policies.

This book constitutes the refereed proceedings of seven workshops and a symposium, held at the 34th International Conference on Conceptual Modeling, ER 2015, in Stockholm, Sweden. The 26 revised full and 8 invited papers were carefully reviewed and selected out of 52 submissions to the following events: Conceptual Modelling for Ambient Assistance and Healthy Ageing, AHA-2015; Conceptual Modelling of Services, CMS-2015; Event Modelling and Processing in Business Process Management, EMoV-2015; Modelling and Management of Big Data, MoBID-2015; Modelling and Reasoning for Business Intelligence, MORE-BI-2015; Conceptual Modelling in Requirements Engineering and Business Analysis, MREBA-2015; Quality of Modelling and Modelling of Quality,

QMMQ-2015; and the Symposium on Conceptual Modelling Education, SCME-2015.

Networked thermostats, fitness monitors, and door locks show that the Internet of Things can (and will) enable new ways for people to interact with the world around them. But designing connected products for consumers brings new challenges beyond conventional software UI and interaction design. This book provides experienced UX designers and technologists with a clear and practical roadmap for approaching consumer product strategy and design in this novel market. By drawing on the best of current design practice and academic research, *Designing Connected Products* delivers sound advice for working with cross-device interactions and the complex ecosystems inherent in IoT technology.

One of the most important issues businesses face is how to adapt to changing operational and administrative processes. Globalization and high competition highlight the importance of technological innovation and its contribution to the organizational performance of businesses. *Technological Developments in Industry 4.0 for Business Applications* is a collection of innovative research on the methods and applications of developing new services related to industrial processes in order to improve organizational well-being. It also looks at the technological, organizational, and social aspects of Industry 4.0. Highlighting a range of topics including enterprise integration, logistic models, and supply chain, this book is ideally designed for computer engineers, managers, business and IT professionals, business researchers, and post-graduate students seeking current research on the evolution and development of business applications in the modern industry era.

As the need for sustainable development practices around the world continues to grow, it has become imperative for citizens to become actively engaged in the global transition. By evaluating data collected from various global programs, researchers are able to identify strategies and challenges in implementing civic engagement initiatives. *Analyzing the Role of Citizen Science in Modern Research* focuses on analyzing data on current initiatives and best practices in citizen engagement and education programs across various disciplines. Highlighting emergent research and application techniques within citizen science initiatives, this publication appeals to academicians, researchers, policy makers, government officials, technology developers, advanced-level students and program developers interested in launching or improving citizen science programs across the globe.

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