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Wireless Networking

LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis

LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis

LTE for UMTS

Advances in Artificial Systems for Medicine and Education III

Fundamentals of Wireless Communication Engineering Technologies

Wireless Communication Systems

Mobile Lightweight Wireless Systems

LTE - The UMTS Long Term Evolution

Mobile Lightweight Wireless Systems

LTE, LTE-Advanced and WiMAX

Encyclopedia of Information Science and Technology, Fourth Edition

Enabling Technologies for Next Generation Wireless Communications

4G Wireless Communication Networks

LTE-A, WiMAX 2.2 and WLAN (4G/5G)

Security in Next Generation Mobile Networks: SAE/LTE and WiMAX  
Recent Advances in Power Systems  
Advanced Methodologies and Technologies in Network Architecture, Mobile Computing, and Data Analytics  
Forensic Radio Survey Techniques for Cell Site Analysis  
Handbook of Research on ICTs and Management Systems for Improving Efficiency in Healthcare and Social Care  
Mobile and Wireless Networks  
LTE - The UMTS Long Term Evolution  
Broadband Wireless and WiMAX  
Mobile Broadband  
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Technologies for the Wireless Future  
5G for Future Wireless Networks  
Multifunctional Ultrawideband Antennas  
WiMAX  
LTE for UMTS  
UMTS Networks and Beyond  
Understanding LTE and its Performance  
Wireless Networks

Mobile Wireless Middleware, Operating Systems, and Applications

Mobile WiMAX

Long Term Evolution

Advances in Parallel, Distributed Computing

Digital Front-End in Wireless Communications and Broadcasting

Mobile WiMAX

Resource Allocation in Uplink OFDMA Wireless Systems

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## **LEXI ALEX**

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*Wireless Networking Wiley*

Written by experts actively involved in the 3GPP standards and product development, LTE for UMTS, Second Edition gives a complete and up-to-date overview of Long Term Evolution (LTE) in a systematic and clear manner. Building upon on the success of the first edition,

LTE for UMTS, Second Edition has been revised to now contain improved coverage of the Release 8 LTE details, including field performance results, transport network, self optimized networks and also covering the enhancements done in 3GPP Release 9. This new edition also provides an outlook to Release 10, including the overview of Release 10 LTE-Advanced technology components which enable reaching data rates beyond 1 Gbps. Key updates for

the second edition of LTE for UMTS are focused on the new topics from Release 9 & 10, and include: LTE-Advanced; Self optimized networks (SON); Transport network dimensioning; Measurement results.

**LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis** Springer

Science & Business Media

Presenting the new IEEE 802.16m standard, this is the first book to take a systematic, top-down approach to describing Mobile WiMAX and its next generation, giving detailed algorithmic descriptions together with explanations of the principles behind the operation of individual air-interface protocols and network components. Features: A systematic and detailed, top-down

approach to the design of 4G cellular systems based on IEEE 802.16m and 3GPP LTE/LTE-Advanced technologies A systematic approach to understanding IEEE 802.16m radio access network and mobile WiMAX network architecture and protocols The first comprehensive technical reference on the design, development and performance evaluation of IMT-Advanced systems, including the theoretical background and design principles as well as implementation considerations About the author: The author, chief architect and technical lead of the IEEE 802.16m project at Intel Corporation, initiated and masterminded the development of the IEEE 802.16m standard and has been one of the leading technical drivers in its standardization process in IEEE. The

author was also a leading technical contributor to the definition and development of requirements and evaluation methodology for the IMT-Advanced systems in ITU-R. Reflecting the author's 20+ years expertise and experience, the book provides an in-depth, systematic and structured technical reference for professional engineers, researchers, and graduate students working in cellular communication systems, radio air-interface technologies, cellular communications protocols, advanced radio access technologies for 4G systems, and broadband cellular standards. A systematic and detailed, top-down approach to the design of 4G cellular systems based on IEEE 802.16m and 3GPP LTE/LTE-Advanced

technologies A systematic approach to understanding IEEE 802.16m radio access network and mobile WiMAX network architecture and protocols The first comprehensive technical reference on the design, development and performance evaluation of IMT-Advanced systems, including the theoretical background and design principles as well as implementation considerations  
**LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis** John Wiley & Sons

This book constitutes the thoroughly refereed proceedings of the 5th International Conference on Mobile Wireless Middleware, Operating Systems, and Applications, Mobilware 2012, held in Berlin, Germany, in

November 2012. The 18 revised full papers presented were carefully reviewed and selected from numerous contributions. The papers are organized in topical sections on Internet of things and mobile sensing, mobile middleware platforms, mobile networks, systems support for mobile applications, and context awareness.

#### **LTE for UMTS** Springer

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest

trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research

findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.

**Advances in Artificial Systems for Medicine and Education III**

Springer  
Science & Business Media  
Enabling Technologies for Next Generation Wireless Communications provides up-to-date information on emerging trends in wireless systems,

their enabling technologies and their evolving application paradigms. This book includes the latest trends and developments toward next generation wireless communications. It highlights the requirements of next generation wireless systems, limitations of existing technologies in delivering those requirements and the need to develop radical new technologies. It focuses on bringing together information on various technological developments that are enablers vital to fulfilling the requirements of future wireless communication systems and their applications. Topics discussed include spectrum issues, network planning, signal processing, transmitter, receiver, antenna technologies, channel coding, security and application of machine

learning and deep learning for wireless communication systems. The book also provides information on enabling business models for future wireless systems. This book is useful as a resource for researchers and practitioners worldwide, including industry practitioners, technologists, policy decision-makers, academicians, and graduate students.

### **Fundamentals of Wireless Communication Engineering Technologies**

John Wiley & Sons

The third volume of the influential WWRF Book of Visions of research and trends in mobile communications has been fully updated. It includes three new chapters on flexible spectrum use, ultra-broadband convergent home-area networks, and the system concept.

Visions from manufacturers, network operators, research institutes and academia from all over world are captured by the WWRF in one comprehensive single point of reference. Technologies for the Wireless Future, Volume 3 describes the expectations and requirements of a user in the 'future wireless world' between 2010 and 2017. This will enable readers to prioritise research topics based on the provision of cost-effective solutions. This book is ideal for researchers from both academia and industry, as well as engineers, managers, strategists, and regulators. WWRF has become highly influential on the future of wireless communication. You can see the evidence already, as many of the concepts described in the very first Book



of Vision have been adopted in today's wireless implementations. The organization brings together the long-range views of academia with the practical constraints and requirements of industry. This is a powerful combination. Mark Pecen, Vice President, Research In Motion Limited The WWRF Book of Vision series of books are an invaluable source of information for key thoughts and technology developments in wireless and mobile communication. The comprehensiveness and diversified nature of its research reports and results can prove to be a very useful tool in planning and developing the next generation network and services. Bill Huang, General Manager, China Mobile Research As mobile broadband becomes part of our daily lives, in the same way

that mobile telephony has done, and helps us to support important issues such as health care, education and many other priorities, WWRF is again exploring the options for mobile and wireless systems in its' third edition of the Book of Visions. Earlier versions have helped to reach global consensus on research objectives, reduce investment risk and generate critical mass in research efforts. The third book of visions provides key insights into the international academic and commercial discussion on tomorrows' hot topics in mobile research! Håkan Eriksson, Senior Vice President, CTO, Ericsson  
*Wireless Communication Systems*  
Springer Nature  
From cloud computing to data analytics, society stores vast supplies of

information through wireless networks and mobile computing. As organizations are becoming increasingly more wireless, ensuring the security and seamless function of electronic gadgets while creating a strong network is imperative. *Advanced Methodologies and Technologies in Network Architecture, Mobile Computing, and Data Analytics* highlights the challenges associated with creating a strong network architecture in a perpetually online society. Readers will learn various methods in building a seamless mobile computing option and the most effective means of analyzing big data. This book is an important resource for information technology professionals, software developers, data analysts, graduate-level students, researchers, computer

engineers, and IT specialists seeking modern information on emerging methods in data mining, information technology, and wireless networks.

Mobile Lightweight Wireless Systems

John Wiley & Sons

Starting from voice services with simple terminals, today a mobile device is nothing sort of a small PC in the form of smart-phones. The result has been a huge increase in data-services giving mobile communication access to critical aspects of human society / life. This has led to standardization of SAE/LTE (System Architecture Evolution / Long Term Evolution) by 3GPP and IEEE 802.16e / WiMAX. Together with penetration of mobile communications and new standardization come new security issues and thus the need for

new security solutions. This book provides a fresh look at those security aspects, with main focus on the latest security developments of 3GPP SAE/LTE and WiMAX. SAE/LTE is also known as Evolved Packet System (EPS). The intended audience for this book is mobile network and device architects, designers, researchers and students. The goal of the authors, who have a combined experience of more than 25 years in mobile security standardization, architecture, research, and education, is to provide the book's readers with a fresh and up-to-date look at the architecture and challenges of EPS and WiMAX security. This book includes 6 chapters, where the first 3 chapters are intended to be introductory ones, and the remaining 3 chapters provide more

in-depth discussions. The book starts with Chapter 1 where we give a background of Next Generation Mobile Networks (NGMN) activity and requirements. Following explanation of NGMN, Chapter 2 provides an overview of security, telecommunication systems and their requirements. Chapter 3 provides some background on standardization. Chapter 4 discusses the EPS (or SAE/LTE) security architecture developed by 3GPP. In particular, this chapter covers the authentication and key agreement method for SAE/LTE together with newly defined key hierarchy. This chapter also addresses the challenging aspects of SAE/LTE interworking and mobility with UMTS together with the necessary key-exchange technologies. The focus of

Chapter 5 is WiMAX (IEEE 802.16) security. Chapter 5 provides an in-depth discussion of the WiMAX security requirements, the authentication aspects of PKMv2, and the overall WiMAX network security aspects. In Chapter 6 we briefly cover security for (i) Home(evolved)NodeB (H(e)NB) is the Femto solution from 3GPP), (ii) Machine-to-Machine (M2M) security and (iii) Multimedia Broadcast and Multicast Service (MBMS) and Group Key Management. Contents: Preface; Introduction to next generation mobile networks (NGMN) and security requirements; Security basics; Standardization process in 3GPP and IEEE/WiMAX; SAE/LTE Security; Security in IEEE 802.16e / WiMAX; Security for other systems like M2M and 3GPP

Femto; Abbreviations; Index.

*LTE - The UMTS Long Term Evolution*  
John Wiley & Sons

The First International Conference on Mobile Lightweight Systems (MOBILIGHT) was held in Athens during May 18–20, 2009. The decision to organize a scientific event on wireless communications, where competition is really enormous, was motivated by discussions with some colleagues about the current unprecedented request for lightweight, wireless communication devices with high usability and performance able to support added-value services in a highly mobile environment. Such devices follow the user everywhere he/she goes (at work, at home, while travelling, in a classroom, etc.), but also result in exciting - search,

development and business opportunities. Such a scenario clearly demands significant upgrades to the existing communication paradigm in terms of infrastructure, devices and services to support the anytime, anywhere, any device philosophy, introducing novel and fast-evolving requirements and expectations on research and development in the field of information and communication technologies. The core issue is to support the desire of wireless users to have 24/7 network availability and transparent access to "their own" services.

### **Mobile Lightweight Wireless Systems** IGI Global

This book discusses the latest advances in the development of artificial intelligence systems and their

applications in various fields, from medicine and technology to education. It comprises papers presented at the Third International Conference of Artificial Intelligence, Medical Engineering, Education (AIMEE2019), held at the Mechanical Engineering Institute of the Russian Academy of Sciences, Moscow, Russia, on 1–3 October 2019. Covering topics such as mathematics and biomathematics; medical approaches; and technological and educational approaches, it is intended for the growing number of specialists and students in this field, as well as other readers interested in discovering where artificial intelligence systems can be applied in the future.

LTE, LTE-Advanced and WiMAX John Wiley & Sons

WiMAX Broadband Wireless Access Technology, based on the IEEE 802.16 standard, is at the origin of great promises for many different markets covering fixed wireless Internet Access, Backhauling and Mobile cellular networks. WiMAX technology is designed for the transmission of multimedia services (voice, Internet, email, games and others) at high data rates (of the order of Mb/s per user). It is a very powerful but sometimes complicated technique. The WiMAX System is described in thousands of pages of IEEE 802.16 standard and amendments documents and WiMAX Forum documents. WiMAX: Technology for Broadband Wireless Access provides a global picture of WiMAX and a large number of details that makes access to

WiMAX documents much easier. All the aspects of WIMAX are covered. Illustrations and clear explanations for all the main procedures of WiMAX are pedagogically presented in a succession of relatively short chapters Topics covered include WiMAX genesis and framework, WiMAX topologies, protocol layers, MAC layer, MAC frames, WiMAX multiple access, the physical layer, QoS Management, Radio Resource Management, Bandwidth allocation, Network Architecture, Mobility and Security Features a glossary of abbreviations and their definitions, and a wealth of explanatory tables and figures Highlights the most recent changes, including the 802.16e amendment of the standard, needed for Mobile WiMAX Includes technical comparisons of

WiMAX vs. 802.11 (WiFi) and cellular 3G technologies This technical introduction to WiMAX, explaining the rather complex standards (IEEE 802.16-2004 and 802.16e) is a must read for engineers, decision-makers and students interested in WiMAX, as well as other researchers and scientists from this evolving field.

**Encyclopedia of Information Science and Technology, Fourth Edition** CRC Press

The first book to cover one of the hottest subjects in wireless communications today, Mobile WiMAX Summarises the fundamental theory and practice of Mobile WiMAX Presents topics at introductory level for readers interested in understanding communication and networking knowledge for Mobile WiMAX, whilst addressing advanced /

specialised subjects related to Mobile WiMAX Contains the latest advances and research from the field and shares knowledge from the key players working in this area Chapter 1 updates Mobile WiMAX status and standards; Chapters 2-6 are related to physical layer transmission; Chapters 7-12 deal with MAC and networking issues; Chapters 13-14 discuss relay networks for mobile WiMAX; and Chapters 15-19 present multimedia networking for mobile WiMAX and application scenarios. Ideal for Mobile WiMAX R&D/practicing engineers (systems, applications and services, field, terminal, IC design, integration), business development professionals, academic researchers. Graduate students conducting research and graduate students studying in

mobile WiMAX and next generation wireless communications.

Undergraduate students studying mobile WiMAX related subjects

Enabling Technologies for Next Generation Wireless Communications  
Springer

"Where this book is exceptional is that the reader will not just learn how LTE works but why it works" Adrian Scrase, ETSI Vice-President, International Partnership Projects Following on the success of the first edition, this book is fully updated, covering the latest additions to LTE and the key features of LTE-Advanced. This book builds on the success of its predecessor, offering the same comprehensive system-level understanding built on explanations of the underlying theory, now expanded to

include complete coverage of Release 9 and the developing specifications for LTE-Advanced. The book is a collaborative effort of more than 40 key experts representing over 20 companies actively participating in the development of LTE, as well as academia. The book highlights practical implications, illustrates the expected performance, and draws comparisons with the well-known WCDMA/HSPA standards. The authors not only pay special attention to the physical layer, giving an insight into the fundamental concepts of OFDMA-FDMA and MIMO, but also cover the higher protocol layers and system architecture to enable the reader to gain an overall understanding of the system. Key New Features: Comprehensively updated with the latest changes of the



LTE Release 8 specifications, including improved coverage of Radio Resource Management RF aspects and performance requirements Provides detailed coverage of the new LTE Release 9 features, including: eMBMS, dual-layer beamforming, user equipment positioning, home eNodeBs / femtocells and pico cells and self-optimizing networks Evaluates the LTE system performance Introduces LTE-Advanced, explaining its context and motivation, as well as the key new features including: carrier aggregation, relaying, high-order MIMO, and Cooperative Multi-Point transmission (CoMP). Includes an accompanying website containing a complete list of acronyms related to LTE and LTE-Advanced, with a brief description of each

([http://www.wiley.com/go/sesia\\_theumts](http://www.wiley.com/go/sesia_theumts)) This book is an invaluable reference for all research and development engineers involved in implementation of LTE or LTE-Advanced, as well as graduate and PhD students in wireless communications. Network operators, service providers and R&D managers will also find this book insightful.

#### **4G Wireless Communication**

**Networks** Cambridge University Press

This practically-oriented, all-inclusive guide covers all the major enabling techniques for current and next-generation cellular communications and wireless networking systems.

Technologies covered include CDMA, OFDM, UWB, turbo and LDPC coding, smart antennas, wireless ad hoc and sensor networks, MIMO, and cognitive

radios, providing readers with everything they need to master wireless systems design in a single volume. Uniquely, a detailed introduction to the properties, design, and selection of RF subsystems and antennas is provided, giving readers a clear overview of the whole wireless system. It is also the first textbook to include a complete introduction to speech coders and video coders used in wireless systems. Richly illustrated with over 400 figures, and with a unique emphasis on practical and state-of-the-art techniques in system design, rather than on the mathematical foundations, this book is ideal for graduate students and researchers in wireless communications, as well as for wireless and telecom engineers.

### **LTE-A, WiMAX 2.2 and WLAN**

### **(4G/5G) IGI Global**

While 3G has been an outstanding success, the ever-growing demand for higher data rates and higher quality mobile communication services continues to fuel conflict between the rapidly growing number of users and limited bandwidth resources. In the future, a 100-fold increase in mobile data traffic is expected. That will necessitate further improvements to 3GPP LTE (Long-Term Evolution) and create limitless opportunities for engineers who understand the technology and how to apply it to deliver enhanced services. Long Term Evolution: 3GPP LTE Radio and Cellular Technology outlines the best way to position yourself now for future success. With coverage ranging from basic concepts to current

research, this comprehensive reference contains technical information about all aspects of 3GPP LTE. It details low chip rate, high-speed downlink/uplink packet access (HSxPA)/TDSCDMA EV 1x, LTE TDD, and 3G TDD. It introduces new technologies and covers methodologies to study the performance of frequency allocation schemes. The authors also discuss the proposed architecture of Mobile IPRR and distributed dynamic architecture in wireless communication, covering performance evaluation of the TD-SCDMA LTE System. With each passing day, more and more users are demanding mobile broadband data access everywhere, to facilitate synchronization of e-mails, Internet access, specific applications, and file downloads to mobile devices such as cell

phones, smart phones, PDAs, and notebooks. LTE, successor to the 3G mobile radio network, is essential to creating radio coverage in the rollout phase and high capacity all over the radio cell in the long term. The 3GPP LTE will become increasingly crucial to supporting the high demand of data traffic rates generated by future mobile user terminals. Authored by international experts in the field, this practical book is an extremely valuable guide that addresses emerging current and future technologies associated with LTE and its future direction.

**Security in Next Generation Mobile Networks: SAE/LTE and WiMAX** John Wiley & Sons

A technological overview of LTE and WiMAX LTE, WiMAX and WLAN Network

Design, Optimization and Performance Analysis provides a practical guide to LTE and WiMAX technologies introducing various tools and concepts used within. In addition, topics such as traffic modelling of IP-centric networks, RF propagation, fading, mobility, and indoor coverage are explored; new techniques which increase throughput such as MIMO and AAS technology are highlighted; and simulation, network design and performance analysis are also examined. Finally, in the latter part of the book Korowajczuk gives a step-by-step guide to network design, providing readers with the capability to build reliable and robust data networks. By focusing on LTE and WiMAX this book extends current network planning approaches to next generation wireless systems based

on OFDMA, providing an essential resource for engineers and operators of fixed and wireless broadband data access networks. With information presented in a sequential format, LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis aids a progressive development of knowledge, complementing latter graduate and postgraduate courses while also providing a valuable resource to network designers, equipment vendors, reference material, operators, consultants, and regulators. Key Features: One of the first books to comprehensively explain and evaluate LTE Provides an unique explanation of the basic concepts involved in wireless broadband technologies and their applications in LTE, WiMAX, and WLAN

before progressing to the network design  
Demonstrates the application of network  
planning for LTE and WiMAX with  
theoretical and practical approaches  
Includes all aspects of system design  
and optimization, such as dynamic traffic  
simulations, multi-layered traffic  
analysis, statistical interference analysis,  
and performance estimations  
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Design Next-Generation Wireless  
Networks Using the Latest Technologies  
Fully updated throughout to address  
current and emerging technologies,  
standards, and protocols, *Wireless  
Networks, Third Edition*, explains  
wireless system design, high-speed  
voice and data transmission,  
internetworking protocols, and 4G

convergence. New chapters cover LTE,  
WiMAX, WiFi, and backhaul. You'll learn  
how to successfully integrate LTE,  
WiMAX, UMTS, HSPA, CDMA2000/EVDO,  
and TD-SCDMA into existing cellular/PCS  
networks. Configure, manage, and  
optimize high-performance wireless  
networks with help from this thoroughly  
revised, practical guide. Comprehensive  
coverage includes: Overview of 3G  
wireless systems UMTS (WCDMA) and  
HSPA CDMA2000 and EVDO TD-SCDMA  
and TD-CDMA LTE WiMAX VoIP WiFi  
Broadband system RF design  
considerations Network design  
considerations Backhaul Antenna system  
selection, including MIMO System design  
for UMTS, CDMA2000 with EVDO, TD-  
SCDMA, TD-CDMA, LTE, and WiMAX  
Communication sites including in-

building and colocation guidelines 5G and beyond

*Advanced Methodologies and Technologies in Network Architecture, Mobile Computing, and Data Analytics*  
CRC Press

An all-encompassing coverage on UMTS Networks including an in-depth discussion of current work on UMTS evolution and 4G . UMTS Networks and Beyond offers a comprehensive introduction to the networking aspects of UMTS and the networks coming after UMTS. The book is unique in that it systematically compares how a particular problem, e.g. obtaining connectivity, is solved in UMTS and how the same problem is solved in a Computer Network such as the Internet. It also highlights why the respective

solutions are so different. The first part of the book provides a detailed technical discussion of UMTS, including original vision, architecture, protocol stacks and overall functionality. It places UMTS in the context of its evolution of from GSM and its convergence with Computer Networks. The second part of the book discusses today's vision of 4G, and introduces upcoming networking technologies. Emphasis is on LTE / SAE as successor of UMTS; UMB, WiMAX and NGN are also discussed. The book gives an overview of what these technologies are likely to offer, of their architectures, protocols and functionality. It also discusses their differences and similarities, and whether they will qualify as 4G. Key Features: Provides readers, particularly those with a background in

IP-based networks, with a technical understanding of what UMTS does, how it works and how it is likely to evolve Explains the differences in design between UMTS Networks and Computer Networks and discusses how these design divergences can be reconciled in the future Shows how economic considerations shape the design of UMTS Motivates why particular design choices are made in UMTS Gives an in-depth introduction to LTE / SAE Provides a detailed picture of the state of the art in 4G Illustrates the theory with numerous tables and figures This comprehensive textbook is essential reading for advanced students and lecturers in communications systems and networking. It is also of interest to engineers and researchers in the field of

UMTS and communications systems. Forensic Radio Survey Techniques for Cell Site Analysis Academic Press This book constitutes the proceedings of the First International Conference on 5G for Future Wireless Networks, 5GWN 2017, held in Beijing, China, in April 2017. The 64 full papers were selected from 135 submissions and present the state of the art and practical applications of 5G technologies. The exponentially growing data traffic caused by the development of mobile Internet and smart phones requires powerful networks. The fifth generation (5G) techniques are promising to meet the requirements of this explosive data traffic in future mobile communications. **Handbook of Research on ICTs and Management Systems for Improving**

**Efficiency in Healthcare and Social Care** John Wiley & Sons

This book presents the state of the art in the field of mobile and wireless networks, and anticipates the arrival of new standards and architectures. It focuses on wireless networks, starting with small personal area networks and progressing onto the very large cells of wireless regional area networks, via local area networks dominated by WiFi technology, and finally metropolitan networks. After a description of the existing 2G and 3G standards, with LTE being the latest release, LTE-A is addressed, which is the first 4G release, and a first indication of 5G is provided as

seen through the standardizing bodies. 4G technology is described in detail along with the different LTE extensions related to the massive arrival of femtocells, the increase to a 1 Gbps capacity, and relay techniques. 5G is also discussed in order to show what can be expected in the near future. The Internet of Things is explained in a specific chapter due to its omnipresence in the literature, ad hoc and mesh networks form another important chapter as they have made a comeback after a long period of near hibernation, and the final chapter discusses a particularly recent topic: Mobile-Edge Computing (MEC) servers.

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