



LTE in Industry Verticals: Market Opportunities and Forecasts 2013 – 2018

January 2013



Overview:

There is a rapidly growing demand for broadband-enabled data applications within certain vertical market segments including public safety, oil, gas and energy production, defense and others. Wireless infrastructure and support service providers are optimizing LTE as the technology of choice for general communications and various applications including remote data acquisition, video surveillance, multimedia PTT, and others for private LTE network deployments. Mind Commerce expects LTE services in these key vertical market segments to grow at a CAGR of nearly 63% and eventually account for nearly \$23 Billion in service revenue by the end of 2018.

This report provides an in depth assessment of LTE in industry verticals including use cases, case studies, business case, value chain analysis, adoption timelines, and evaluation of key trends and drivers. The report includes forecasts for subscriptions and service revenue for 2012 to 2018 with sub-market data for the following industries: Oil, Gas and Energy, Construction, Agriculture, Mining, Utilities, Transportation, Defense, Public Safety, Education and Distance Learning, Healthcare. Forecasts also include a breakdown by consumer and enterprise users.

The report covers the following topics:

- Overview of LTE Technology
- Value Chain for LTE in Vertical Industry Segments
- Business Case for LTE in Vertical Industry Segments
- Subscription and service revenues for consumer and enterprise LTE usage
- Key Trends Impacting LTE Adoption in Vertical Industry Segments including: Critical Infrastructure, Municipal Networks, M2M and LMR to LTE Migration
- Use Cases, Case Studies and Adoption Timelines for LTE in vertical segments: Oil, Gas and Energy, Construction, Agriculture, Mining, Utilities, Transportation, Defense, Public Safety, Education and Healthcare
- Subscription and service revenue forecasts assessing the LTE industry by vertical industry segment (Oil, Gas and Energy, Construction, Agriculture, Mining, Utilities, Transportation, Defense, Public Safety, Education and Distance Learning, Healthcare)

Key Findings:

- The public safety market will be the largest vertical segment in terms of subscriptions
- LTE subscriptions will grow at a CAGR of nearly 96% over the next five years, eventually reaching 2 Billion subscriptions by the end of 2018
- Vendors will increasingly optimize LTE for many applications including remote data acquisition, video surveillance, multimedia PTT, and more
- Vertical market segments will account for nearly \$23 Billion in service revenue by the end of 2018, following a CAGR of 63% between 2013 and 2018



Questions Answered in Report:

- Will LTE completely replace digital LMR systems ?
- How do vertical markets fit into the LTE value chain ?
- Will public safety be the largest vertical market segment for LTE?
- How big is the opportunity for the utilities vertical market segment?
- What are the adoption timelines for LTE in vertical market segments ?
- What are the key applications of LTE in each vertical market segment ?
- How much is the LTE opportunity worth in each vertical market segment?
- What will be the ratio of enterprise and consumer LTE subscriptions in 2018?

Companies in Report:

Alcatel Lucent

AT&T

BL Healthcare

Capita

Cassidian

Ericsson

General Dynamics

GSMA

Harris

Huawei

Motorola Solutions

Nokia Siemens Networks

Pepper Construction

Qatar MOI

Raytheon

Rio Tinto

Swindon Borough Council

Telit Wireless Solutions

Texas Energy Network (TEN)

U.S. Army

U.S. Navy

UK Broadband (UKB)

Verizon Wireless



Target Audience:

- Application Developers
- Mobile network operators
- Managed service companies
- Mobile device manufacturers
- Wireless infrastructure vendors
- Machine-to-Machine (M2M) suppliers
- WiMAX and WiFi infrastructure suppliers
- Research and development organizations
- Government officials and agencies globally

Industry/Government Segments:

- Agriculture companies
- Construction companies
- Healthcare organizations
- Utilities and smartgrid companies
- Extraction industries: oil, gas, and mining
- Education and distance learning companies
- Government, defense and homeland security
- Law enforcement, emergency response and public safety

Table of Contents:

1	Chapter 1: Introduction	9
1.1	Executive Summary	9
1.2	Topics Covered	11
1.3	Key Findings	12
1.4	Key Questions Answered	13
1.5	Target Audience	14
1.6	Companies Mentioned	15
2	Chapter 2: An Overview of LTE Technology	17
2.1	LTE RAN Technology (E-UTRAN)	18
2.2	EPC Technology	20
2.3	Interoperability with 2G/3G Systems	22
2.3.1	Mobile Data Only Service	22
2.3.2	LTE Data Service with 2G/3G Voice	22
2.3.3	Voice and Data Services over LTE	22
2.4	Interoperability with LMR Systems	23
2.5	LTE Advanced Support for Heterogeneous Commercial and LMR Networks	24
3	Chapter 3: The Business Case for LTE in Vertical Industry Segments	25
3.1	Key Market Drivers	25
3.1.1	Security Features	25
3.1.2	Spectrum Flexibility	26
3.1.3	Economic Feasibility	26
3.1.4	Vendor Commitments	26
3.1.5	Support for Data Intensive and Low Latency Applications	26
3.1.6	Voice Interoperability	27
3.2	Key Barriers	27
3.2.1	Interoperability with Legacy Proprietary Solutions	27
3.2.2	The Private vs. Shared Commercial Network Debate	27
3.2.3	Device Challenges	27
3.3	The LTE in Industry Verticals Value Chain	28
4	Chapter 3: Vertical Industry Segments	30
4.1	Oil and Gas	30
4.1.1	Critical Communication Needs in Remote Locations	30
4.1.2	Reliance on LMR Solutions	31
4.1.3	Data Applications and Economic Feasibility: Is LTE the Answer ?	31
4.1.4	Texas Energy Network (TEN): An operational M2M LTE Network for the Oil and Gas Industry	32
4.2	Construction	33
4.2.1	The Communication Needs of a \$2 Trillion Market	33
4.2.2	Case Study: LTE Enables Pepper Construction	33
4.3	Agriculture	34
4.3.1	A Fundamental Aspect to National Economies	34
4.3.2	The GSMA mAgri Initiative	34
4.3.3	LTE Based M2M Solutions	35
4.4	Mining	35
4.4.1	LTE in Mining: Communications and Remote Monitoring	35
4.4.2	Case Study: Rio Tinto LTE Network	35
4.5	Utilities	36
4.5.1	Complimenting LMR Narrowband Communications	36
4.5.2	Extending Prospects to M2M	36
4.5.3	Enabling Smart Grid and Smart Meter Applications	37
4.6	Transportation	38
4.6.1	Cellular M2M in the Transportation Industry	38
4.6.2	Enabling Content Services	38
4.6.3	New Opportunities: Advertising on Public Transport	39
4.7	Defense	40
4.7.1	Technology is No Longer Driven by Military Needs and Funding	40
4.7.2	Leveraging Commercial Off-The-Shelf (COTS) Communications Equipment	40
4.7.3	U.S. Army LTE Trial	41
4.7.4	Naval Task Force Connectivity: U.S. Navy Adopts LTE	41
4.8	Public Safety	42
4.8.1	Endorsement as the Next Generation Public Safety Communication Technology	42
4.8.2	Transforming the Next Generation Command Centre	44
4.8.3	Qatar MOI: Leveraging LTE for Real-Time Video Monitoring	44
4.9	Education and Distance Learning	45
4.9.1	The Importance of Internet Connectivity in Education	45
4.9.2	Community-wide LTE Networks	45
4.9.3	Learning from WiMAX: Past Success Stories	45
4.10	Healthcare	46
4.10.1	Transforming the Healthcare Industry	46
4.10.2	LTE and Mobile Video: The Future of E-Healthcare	46
5	Chapter 5: Key Trends	47
5.1	Critical Infrastructure	47
5.1.1	U.S Nationwide Private LTE Network: Synergies with Public Safety LTE	47
5.1.2	Private Deployments Targeting Critical Infrastructure	48
5.2	Municipal Networks	48
5.2.1	Prospects of Municipal LTE Networks	48
5.2.2	Case Study: Swindon Borough Council	48
5.3	M2M	49
5.3.1	2G/3G Market Penetration	49
5.3.2	Towards an LTE Era	50
5.4	LMR to LTE: Complementation or Replacement	51
5.5	LTE in the 'Traditional' Enterprise Segment	52
5.5.1	Serving the Needs of the Traditional Enterprise	52
5.5.2	The Mobile Workforce	53
5.5.3	Improving In-Building Coverage: LTE Small Cells	53
5.6	Adoption Timeline by Vertical Industry Segment	54
5.6.1	Oil, Gas and Energy Production	54
5.6.2	Construction	54
5.6.3	Agriculture	54
5.6.4	Mining	54
5.6.5	Utilities	54
5.6.6	Transportation	55
5.6.7	Defense	55
5.6.8	Public Safety	55
5.6.9	Education	55
5.6.10	Healthcare	55
6	Chapter 6: Market Analysis & Forecasts	56
6.1	The Global LTE Market: 2013 - 2018	56
6.1.1	Global LTE Subscriptions: 2013 - 2018	56
6.1.2	Global LTE Service Revenue: 2013 - 2018	57
6.1.3	Consumer and Enterprise LTE Subscriptions Compared: 2013 - 2018	58

Table of Contents (cont.):

6.1.4	Consumer and Enterprise LTE Service Revenue Compared: 2013 - 2018	59
6.1.5	Global LTE Subscriptions by Vertical Segment: 2013 - 2018	60
6.1.6	Global LTE Service Revenue by Vertical Segment: 2013 - 2018	62
6.1.7	Global LTE Subscriptions by Vertical Segment: 2013 - 2018	64
6.1.8	LTE in the Oil, Gas & Energy Vertical Segment: 2013 - 2018	66
6.1.9	LTE in the Construction Vertical Segment: 2013 - 2018	67
6.1.10	LTE in the Agriculture Vertical Segment: 2013 - 2018	68
6.1.11	LTE in the Mining Vertical Segment: 2013 - 2018	69
6.1.12	LTE in the Utilities Vertical Segment: 2013 - 2018	70
6.1.13	LTE in the Transportation Vertical Segment: 2013 - 2018	71
6.1.14	LTE in the Defense Vertical Segment: 2013 - 2018	72
6.1.15	LTE in the Public Safety Vertical Segment: 2013 - 2018	73
6.1.16	LTE in the Education Vertical Segment: 2013 - 2018	74
6.1.17	LTE in the Healthcare Vertical Segment: 2013 - 2018	75
6.1.18	Global LTE Subscriptions by Region: 2013 - 2018	76
6.1.19	Global LTE Service Revenue by Region: 2013 - 2018	77
6.2	The Regional LTE Market: 2013 - 2018	78
6.2.1	North America LTE Subscriptions & Service Revenue: 2013 - 2018	78
6.2.2	Asia Pacific LTE Subscriptions & Service Revenue: 2013 - 2018	79
6.2.3	Western Europe LTE Subscriptions & Service Revenue: 2013 - 2018	80
6.2.4	Eastern Europe LTE Subscriptions & Service Revenue: 2013 - 2018	81
6.2.5	Middle East and Africa LTE Subscriptions & Service Revenue: 2013 - 2018	82
6.2.6	Latin and Central America LTE Subscriptions & Service Revenue: 2013 - 2018	83

List of Figures

Figure 1: LTE RAN Architecture	18	
Figure 2: LTE EPC Architecture	21	
Figure 3: LTE Value Chain: Traditional Enterprise and Vertical Segments	28	
Figure 4: LTE Applications in the Oil and Gas Industry	32	
Figure 5: Cellular Network Integration in a Smart Grid Setup	37	
Figure 6: Illustration of a Public Safety LTE Network	43	
Figure 7: Global LTE Subscriptions: 2013 – 2018 (Millions)	56	
Figure 8: Global LTE Service Revenues: 2013 – 2018 (\$ Billion)	57	
Figure 9: Consumer and Enterprise LTE Subscriptions Compared: 2013 – 2018 (Millions)	58	
Figure 10: Consumer and Enterprise LTE Service Revenues Compared: 2013 – 2018 (\$ Billion)	59	
Figure 11: Global LTE Subscriptions by Vertical Industry Segment – Excluding Generic Enterprise: 2013 – 2018 (Thousands)		60
Figure 12: Generic Enterprise LTE Subscriptions: 2013 – 2018 (Thousands)	61	
Figure 13: Global LTE Service Revenue by Vertical Industry Segment – Excluding Generic Enterprise: 2013 – 2018 (\$ Billion)		62
Figure 14: Generic Enterprise LTE Service Revenue: 2013 – 2018 (\$ Billion)	63	
Figure 10: Global LTE Subscriptions by Vertical Industry Segment – Excluding Generic Enterprise: 2013 – 2018 (Thousands)		64
Figure 11: Generic Enterprise LTE Subscriptions: 2013 – 2018 (Thousands)	65	
Figure 17: Global LTE Service Revenue – Oil, Gas & Energy Vertical: 2013 – 2018 (\$ Billion)		66
Figure 18: Global LTE Subscriptions – Oil, Gas & Energy Vertical: 2013 – 2018 (Thousands)		66
Figure 19: Global LTE Service Revenue – Construction Vertical: 2013 – 2018 (\$ Billion)	67	
Figure 20: Global LTE Subscriptions – Construction Vertical: 2013 – 2018 (Thousands)	67	
Figure 21: Global LTE Service Revenue – Agriculture Vertical: 2013 – 2018 (\$ Billion)	68	
Figure 22: Global LTE Subscriptions – Agriculture Vertical: 2013 – 2018 (Thousands)	68	
Figure 23: Global LTE Service Revenue – Mining Vertical: 2013 – 2018 (\$ Billion)	69	
Figure 24: Global LTE Subscriptions – Mining Vertical: 2013 – 2018 (Thousands)	69	
Figure 25: Global LTE Service Revenue – Utilities Vertical: 2013 – 2018 (\$ Billion)	70	
Figure 26: Global LTE Subscriptions – Utilities Vertical: 2013 – 2018 (Thousands)	70	
Figure 27: Global LTE Service Revenue – Transportation Vertical: 2013 – 2018 (\$ Billion)	71	
Figure 28: Global LTE Subscriptions – Transportation Vertical: 2013 – 2018 (Thousands)	71	
Figure 29: Global LTE Service Revenue – Defense Vertical: 2013 – 2018 (\$ Billion)	72	
Figure 30: Global LTE Subscriptions – Defense Vertical: 2013 – 2018 (Thousands)	72	
Figure 31: Global LTE Service Revenue – Public Safety Vertical: 2013 – 2018 (\$ Billion)	73	
Figure 32: Global LTE Subscriptions – Public Safety Vertical: 2013 – 2018 (Thousands)	73	
Figure 33: Global LTE Service Revenue – Education Vertical: 2013 – 2018 (\$ Billion)	74	
Figure 34: Global LTE Subscriptions – Education Vertical: 2013 – 2018 (Thousands)	74	
Figure 35: Global LTE Service Revenue – Healthcare Vertical: 2013 – 2018 (\$ Billion)	75	
Figure 36: Global LTE Subscriptions – Healthcare Vertical: 2013 – 2018 (Thousands)	75	
Figure 37: Global LTE Subscriptions by Region: 2013 – 2018 (Millions)	76	
Figure 38: Global LTE Service Revenue by Region: 2013 – 2018 (\$ Billion)	77	
Figure 39: North America LTE Subscriptions: 2013 – 2018 (Millions)	78	
Figure 40: North America LTE Service Revenue: 2013 – 2018 (\$ Billion)	78	
Figure 41: Asia Pacific LTE Subscriptions: 2013 – 2018 (Millions)	79	
Figure 42: Asia Pacific LTE Service Revenue: 2013 – 2018 (\$ Billion)	79	
Figure 43: Western Europe LTE Subscriptions: 2013 – 2018 (Millions)	80	
Figure 44: Western Europe LTE Service Revenue: 2013 – 2018 (\$ Billion)	80	
Figure 45: Eastern Europe LTE Subscriptions: 2013 – 2018 (Millions)	81	
Figure 46: Eastern Europe LTE Service Revenue: 2013 – 2018 (\$ Billion)	81	
Figure 47: Middle East and Africa LTE Subscriptions: 2013 – 2018 (Millions)	82	
Figure 48: Middle East and Africa LTE Service Revenue: 2013 – 2018 (\$ Billion)	82	
Figure 49: Latin and Central America LTE Subscriptions: 2013 – 2018 (Millions)	83	
Figure 50: Latin and Central America LTE Service Revenue: 2013 – 2018 (\$ Billion)		83



Order Form

Report Title

LTE in Industry Verticals: Market Opportunities and Forecasts 2013 - 2018

License Type

☐ Single User License **\$ 2,995 USD**

☐ Company-wide License..... **\$ 6,995 USD**

☐ Team License (2-5 people) **\$ 3,865 USD**

☐ Other Licensing options available: Contact Mind Commerce

Family/Surname

First Name

Position

Company

Address

Country

Post Code

FAX

Telephone

Email

Order Type



Order by FAX at 1 877 646 3266

Card Number

Expiration Date (MM/YY)

CV Code

Cardholder's name

Signature

Billing Address

Postcode

Country

Signature

Date

Online Ordering

Customers can order online by visiting report web page:

http://www.mindcommerce.com/Publications/LTE_IndVert_2013-2018.php