



Rethink Technology Research

RAN Service



HetNet Deployments and Trends

Multilayer and Multiband Networks

2014-2021

Updated in January 2017



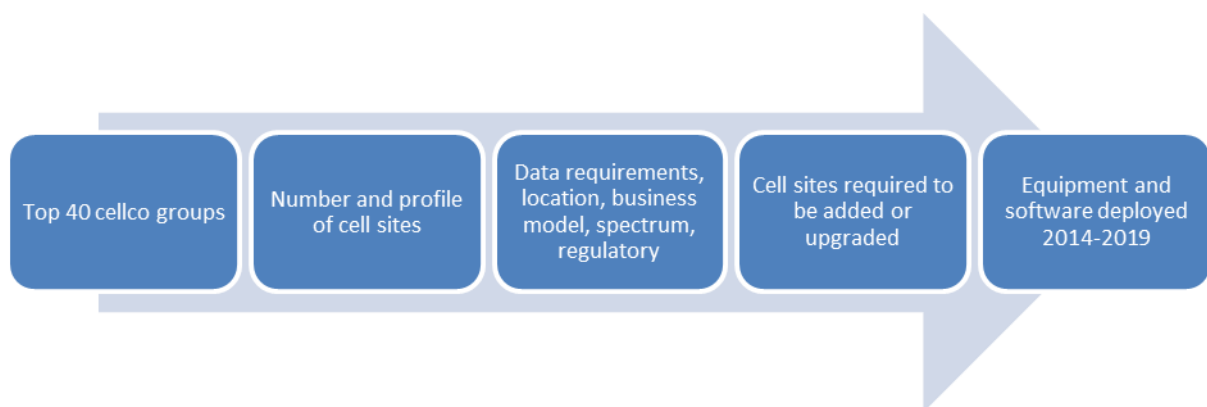
All modules contain between 6 and 15 data tables plus regional breakdown, with accompanying commentary consisting of graphs and concise commentary on the assumptions underlying the forecasts, and the key factors driving them.

The wireless forecast included in this report is based on research on the top 40 international mobile operator groups, which account for 80% of the global mobile subscribers (IMG-40). From this representative group of operators, the macrocell and metrocell forecasts are developed.

From the starting point of a calculation of the number of cell sites already deployed worldwide, forecasts were made of the numbers of base stations that would be rolled out a) to brand new sites and b) to replace or upgrade existing sites. These deployment forecasts were then categorized by network topology, spectrum band, spectrum mode, region and other factors. The equipment deployed in each case was also surveyed and modeled.

These forecasts were based on a combination of data from:

- Detailed surveys, interviews and operator-by-operator modeling of the IMG-40 groups.
- Studies of the deployments and strategies of the top 100 4G operators, as tracked by Rethink Technology Research's quarterly surveys, interviews and desk research.
- Deeper interviews with senior executives at 25 tier one operators about their detailed plans for RAN deployments to 2021.
- Input from ecosystem vendors on shipments, technology strategies and competitive landscape,

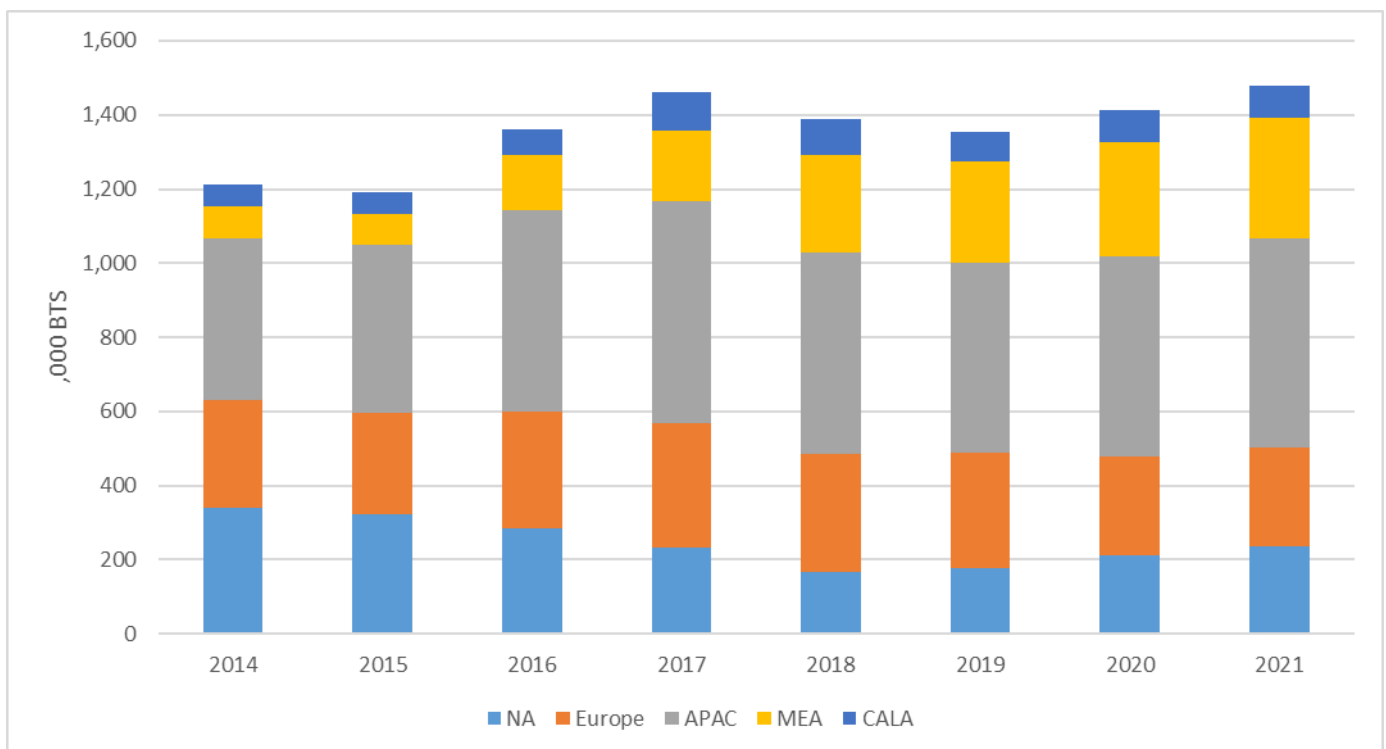




Sample from the Report

Tables 1 and 3. LTE or multimode macro layer base station deployments and upgrades, inc software, by region; installed base by region 2014-2021

Deployment of new macro layer base stations will experience overall CAGR of 3% in the period from 2014 to 2021. This growth will largely be driven by LTE, whether single-mode or combined with 3G and/or 2G. The deployment of new base stations with 2G integrated is in decline throughout the period while 3G deployment, integrated with 4G, will peak in 2016. After that, 3G expansion will slow and many operators will rely on LTE – which will have fallen in price – for coverage, while others will retain a 2G/4G approach while slowing 3G roll-out, especially in countries, like non-urban areas of China, India and some African countries, where 3G was immature at the point when LTE became mainstream.



New deployments and upgrades of macro layer base stations, LTE-only and multimode, by region, 2014-2021



Sample from the Report

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HetNet Deployments and Trends Multilayer and Multiband Networks, 2014-2021

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Sample from the data modules

2. New deployments and upgrades of cellular and cellular/WiFi small cells by region (exc residential)									
	2014	2015	2016	2017	2018	2019	2020	2021	CAGR
Africa	*****	*****	*****	*****	*****	*****	*****	*****	*****
APAC	*****	*****	*****	*****	*****	*****	*****	*****	*****
CALA	*****	*****	*****	*****	*****	*****	*****	*****	*****
CIS	*****	*****	*****	*****	*****	*****	*****	*****	*****
Europe	*****	*****	*****	*****	*****	*****	*****	*****	*****
Middle East	*****	*****	*****	*****	*****	*****	*****	*****	*****
N America	*****	*****	*****	*****	*****	*****	*****	*****	*****
Total	*****	*****	*****	*****	*****	*****	*****	*****	*****
,000 units deployed or upgraded									
16. LTE macrocell installed base by spectrum combination									
	2014	2015	2016	2017	2018	2019	2020	2021	CAGR
One LTE band	*****	*****	*****	*****	*****	*****	*****	*****	*****
Two LTE bands	*****	*****	*****	*****	*****	*****	*****	*****	*****
Three or more LTE bands	*****	*****	*****	*****	*****	*****	*****	*****	*****
Interband CA dual	*****	*****	*****	*****	*****	*****	*****	*****	*****
Interband CA triband	*****	*****	*****	*****	*****	*****	*****	*****	*****
Intraband CA	*****	*****	*****	*****	*****	*****	*****	*****	*****
2G/3G integrated	*****	*****	*****	*****	*****	*****	*****	*****	*****
Total installed base	*****	*****	*****	*****	*****	*****	*****	*****	*****
Total bands connected	*****	*****	*****	*****	*****	*****	*****	*****	*****
,000 BTS supporting each combination - installed base									



Who Should buy these reports?

Every business which is involved with - or wants to be involved with - mobile and wireless, particularly those with an interest in RAN deployments and technologies, including small cells/HetNet and virtualization. The reports include essential information and analysis for mobile and converged operators; their hardware and software suppliers; the wider value chain, including components suppliers and vertical market integrators; as well as investors in these areas, and professional institutions whose members will be affected by the shifts and changes in these markets.

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Rethink Technology Research Ltd, unit G-5, Lower Station Approach, Temple Meads, City of Bristol, BS1 6QS

CEO: Peter White peter@rethinkresearch.biz

Dir of Research Caroline Gabriel caroline@rethinkresearch.biz



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Rethink Small Cells

Module 1: Small cells deployments and installed base 2014-2021

Module 2: Enterprise small cells 2014-2020

Module 3: MNO WiFi deployments and installed base 2014-2020

HetNet

Module 1: HetNet deployments and key trends 2014-2021

Module 2: Macro layer deployments and key trends 2015-2020

Optimization

Module 1: SON deployments and key trends 2014-2020

Module 2: RAN optimization deployments and key trends inc VoLTE 2014-2020

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Single copy with updates over 12 months	4,000	2,600	3,700
Single copy with updates over 12 months and a Q&A session	8,000	5,200	7,400

Sales contact details

John Constant,
+44 (0) 1794 521 411
Email: john@rethinkresearch.biz