



Rethink Technology Research

RAN Service



Small Cells Service Module 1

Deployments and key trends

2014-2021

Updated in January 2017



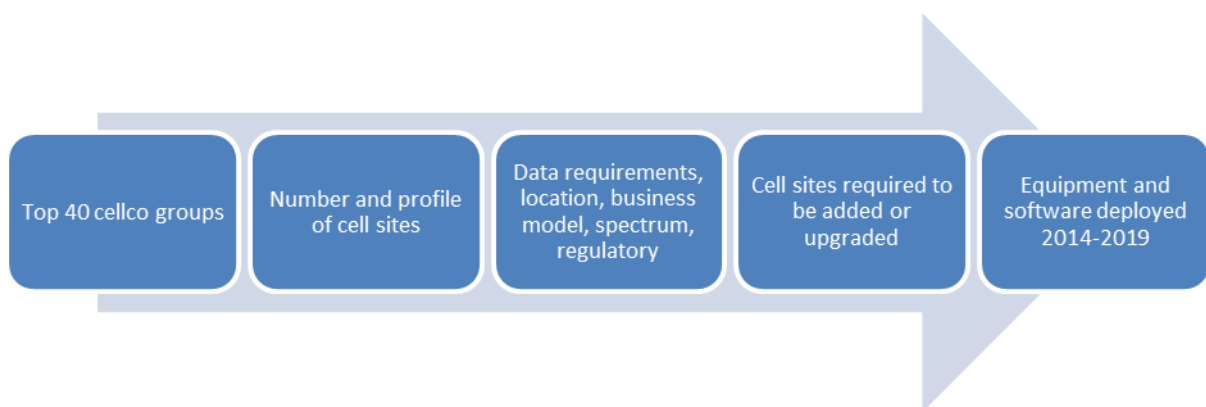
All modules contain between 6 and 15 data tables plus regional breakdown, with accompanying commentary consisting of graphs and concise commentary on the assumptions underlying the forecasts, and the key factors driving them.

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 RAN 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.
- A survey of 25 tier one operators about their detailed plans for RAN deployments to 2021.
- Input from ecosystem vendors on shipments, technology strategies and competitive landscape, also updated quarterly.



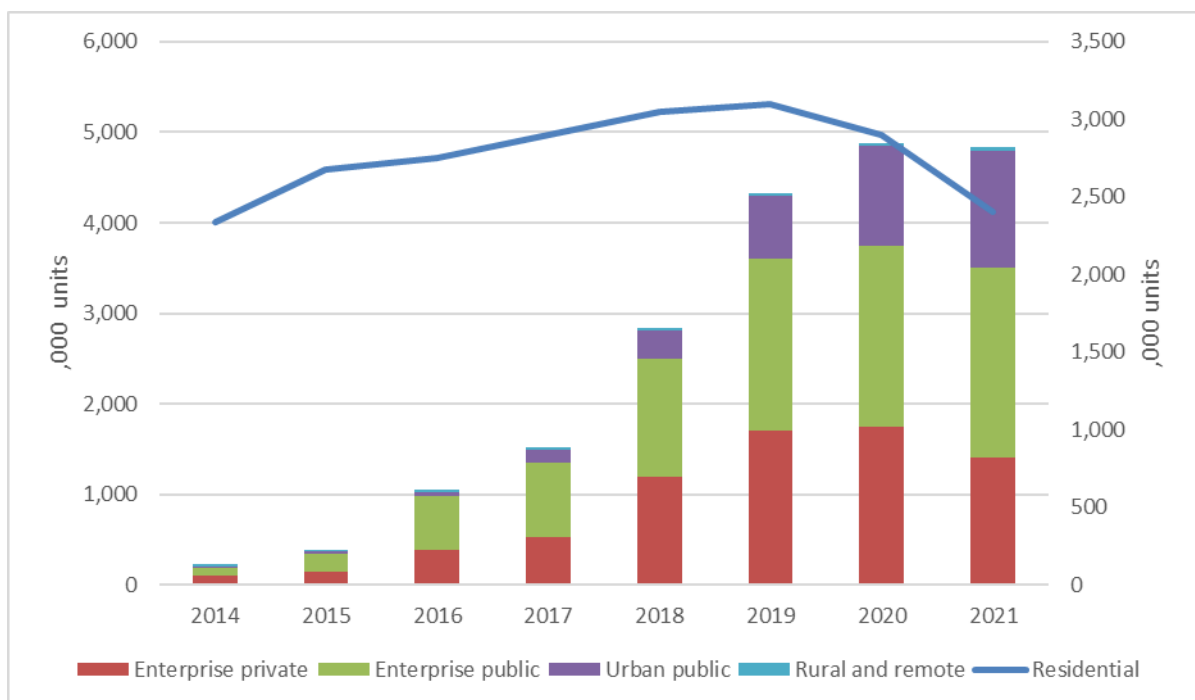


Sample from the Report

Tables 1 and 2. New deployments of small cells by environment

The deployment of small cells by carriers, for public access or enterprise use, will experience CAGR of 55% in the period, far higher than the more mature residential market, which will be flat during the period from 2014 to 2021. The total market growth rate in this period will be 16%, which is slightly lower than Rethink previously forecast, in June 2016. That change is partly because the forecast has been extended to 2021, when a significant uptick in enterprise and urban roll-out will be flattening out as operators start to prepare for 5G (which is not included in this forecast).

The contrast between residential and non-residential trends has become more acute as enterprise roll-out, in particular, accelerates. The total shipments of small cells for all markets will grow from just over 3m in 2015 to almost 7.3m in 2021, falling from a 2020 peak, while non-residential deployments will grow from 388,000 to 4.8.3m in the same period.



New deployments of small cells, by environment



Sample from the Report

Table of Contents

Small Cell deployments and installed base 2014-2021

Table 1	New deployments of small cells 2014-2021
Table 2	New deployments of small cells by environment
Table 3	New deployments of enterprise small cells by region
Table 4	New deployments of urban and rural small cells by region
Table 5	New deployments of small cells by network technology
Table 6	New deployments of small cells, relationship with WiFi
Table 7	New deployments of small cells, by location
Table 8	Small cell deployments by mode (TDD/FDD)
Table 9	Small cell deployments - multiband and carrier aggregation
Table 10	Small cell deployments - total bands supported including multiband
Table 11	Small cell deployments by architecture
Table 12	Small cell deployments by density (enterprise and urban)
Table 13	Small cell installed base 2014-2021 inc residential
Table 14	Ideal and likely timelines to start deploying public access small cells commercially
Table 15	Barriers to small cell deployment at scale (top 3)
Table 16	Drivers to small cell deployment at scale (top 3)
Table 17	Global revenues from small cell hardware - access points and gateways
Table 18	Global revenues from small cell services



Sample from the data modules

2. Macro layer base station deployments and upgrades, inc software, by region									
	2014	2015	2016	2017	2018	2019	2020	2021	CAGR
NA	****	****	****	****	****	****	****	****	****
Europe	****	****	****	****	****	****	****	****	****
APAC	****	****	****	****	****	****	****	****	****
MEA	****	****	****	****	****	****	****	****	****
CALA	****	****	****	****	****	****	****	****	****
Total	****	****	****	****	****	****	****	****	****
<i>,000 units deployed or upgraded with new equipment/software</i>									

4. Macro base station deployments by technology									
	2014	2015	2016	2017	2018	2019	2020	2021	CAGR
LTE	****	****	****	****	****	****	****	****	****
LTE-Advanced	****	****	****	****	****	****	****	****	****
LTE-Advanced Pro	****	****	****	****	****	****	****	****	****
Pre-standard 5G	****	****	****	****	****	****	****	****	****
5G Release 15	****	****	****	****	****	****	****	****	****
LTE/5G	****	****	****	****	****	****	****	****	****
LTE/3G	****	****	****	****	****	****	****	****	****
LTE/3G/2G	****	****	****	****	****	****	****	****	****
3G-only	****	****	****	****	****	****	****	****	****
Total	****	****	****	****	****	****	****	****	****
<i>,000 units deployed or upgraded with new BTS equipment/software</i>									



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.

Our reports are usually purchased by senior operational executives, strategists, analysts and marketing departments.

How can I buy these reports

These reports can be purchased individually from our website

<http://rethinkresearch.biz/store/>

To enquire about corporate licenses call us on +44 (0) 1794 521 411, or you can email john@rethinkresearch.biz

Subscribers to Rethink publications, including Wireless Watch and Faultline can just assume a 25% discount on the report prices. Just deduct it and say why.

How do I pay for these reports

You can pay through our ecommerce system via credit card, you can give us your contact details and we will call for a credit card number. If you need to raise a Purchase Order, we will deliver the report once we have the PO number. Major companies known just need to give us an emailed order for us to deliver.

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



What RAN Research modules are available?

Each module below is available to purchase on our website, visit:

<http://www.rethinkresearch.biz/store/>

For further information, or for a discussion on options and further information, contact John Constant on +44 (0) 1794 521 411 or via email john@rethinkresearch.biz

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 2015-2020

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

Mobile network ownership, MVNOs and NWaaS

Module 1 : Wholesale, sharing and NWaaS 2015-2020

Virtualization

Module 1: Cloud-RAN deployments and key trends 2015-2020

Pricing Per Module	US Dollar	GBP Pound (Exc VAT)	Euro (Exc VAT)
Single copy	2,000	1,600	1850
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