

Small Cells Come of Age

Uncovering a compelling business case
for Small Cell deployments in the UK



The big deal about Small Cells

The true value of Small Cells has been a point of considerable debate in the UK for some time. Supporters point to the technology's ability to address areas of network congestion and eliminate not-spots where macro coverage is poor. Detractors query performance and raise questions about the business case. Leaning on our own Small Cell deployment experience with MNOs in the UK, this short paper aims to add some real-world context to the discussion.



A quick look at the global picture suggests a bright future for the technology. According to a 2019 report¹, the worldwide market for Small Cells is set to grow at a significant 81.9% Compound Annual Growth Rate (CAGR) to 2026 – returning a market value in excess of USD 15,951 million.

We expect the UK market to broadly align to this upward trend – supported by a combination of factors that include more affordable hardware, a growing number of available street assets, and the exponential increase in demand for reliable connectivity to support social inclusion and the digital strategies of local policymakers.

In short, there is now an increasingly compelling economic case for rapid adoption. This is great news for a national telecommunications infrastructure already under pressure from dramatically increased network demand and the 5G delivery challenges posed by legacy planning rules and asset availability.

1. <https://www.fortunebusinessinsights.com/industry-reports/5g-small-cell-market-101600>



The changing face of Small Cells

The slow adoption of Small Cells to date can be attributed to a variety of issues – both real and perceived. However, things are changing fast, and Small Cells have now come of age. Here we look at why.

As smartphone users consume ever-more bandwidth-hungry services, and remote and mobile workers increasingly rely on their mobile networks, growing congestion is combining with limited spectrum to threaten customer experience.

The problem is particularly acute in dense urban areas – where the need to drive additional capacity at street level, and to offload traffic from at-capacity macro sites, is clear. Not only is Small Cell deployment an ideal solution to these challenges, its ability to increase network densification in a 5G world is significant.

However, while the pain may be evident, the business case for deployment has historically been less so. At least until now.

Reducing cost

As technology evolves, the cost of Small Cell hardware is becoming increasingly affordable. Also, as the market matures from pilots to larger deployments, MNOs can benefit from greater economies of scale. This is particularly the case as city boroughs, who have a vested interest in improving connectivity to drive their social and digital inclusion strategies, are now making street assets available at an affordable price across much larger areas.

Having made considerable investments in developing our portfolio of street-level assets, Cellnex UK now offers an expanded number of sites – **over 200,000 in London alone** – to allow MNOs to deploy Small Cells in the locations where they are needed most.

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...continued Industrialised workflows

The growing maturity of the Small Cell ecosystem, and increasing levels of investment by 'neutral host' providers such as Cellnex UK, is driving the development of industrialised and automated deployment workflows. It is now possible to tailor service models to the specific streetscape environment and significantly compress installation timelines – all of which helps to reduce the Small Cell installation costs below the typically quoted 10:1 minimum deployment cost ratio versus macro installation.

We've calculated a total cost of ownership ratio for small cells versus macro sites of 1:8.3, but have seen a ratio of 1:6 for relative performance/capacity. This means that Small Cells can be seen as **c.45% more effective** than new macro site deployment for every pound spent.

Alternative to new macros

Today, it takes just a few weeks to deploy a Small Cell cluster as opposed to the months or even years it can typically take to site a macro. Here, the option to reduce the number of additional high-cost, long lead-time macro sites needed to serve a particular area is undoubtedly compelling for MNOs. There is still work to be done, of course. While the costs of transmission (TX) remain high, back-haul links are no longer priced at macro rates, and this new tailored pricing is considerably lower.

In short, the convergence of all these factors – from lower-cost hardware, transmission and deployment, through the availability of a growing number of assets, to the customer experience impacts of reducing congestion – a considerably more compelling business case is realised.

Of course, with the business case for Small Cells intrinsically linked to that of macro base station deployments, it remains critical that models of delivery continue to evolve. This evolution will ensure that Small Cells remain the most effective and commercially attractive option for delivering coverage and capacity in dense urban areas.



Small Cells in the city: real-world stories



Study 1

Capturing latent demand delivers customer experience benefits

Our Small Cells partnerships with MNOs have uncovered some interesting and unexpected benefits. Conventional thinking says that Small Cells can support macro sites running at capacity by offloading traffic. Our experience shows something extra.

As well as taking traffic from the larger sites, MNOs are finding that Small Cells have picked up additional traffic from the area – while the macro remained operating at near capacity. While unexpected, the impact of addressing latent and previously unserved demand is considerable and enables the MNO to eliminate call failures and offer faster and more consistent data services to subscribers.

Study 2

Plug and play, and ready for evolution

Cellnex UK holds the concession to use the London Borough of Hammersmith and Fulham's street assets for telecommunications purposes. This Connected Street Infrastructure pilot forms part of a more comprehensive programme within Cellnex UK to use Small Cells to address capacity challenges, reduce implementation timelines and offer business case flexibility.

In this proof of concept, the street columns are connected by a brand-new 15km high-density dark fibre network, which is multi-operator capable and provides the bandwidth for MNOs to deploy advanced technology, including centralised C-RAN architecture and 5G. As the concept evolves, we are exploring ways to remove the need for deploying street cabinets alongside Small Cell and Street C-Ran assets. This activity will speed up deployment, keep costs under control and minimise the clutter at street level.



Strategic planning for the future

With upwards of 20,000 points of presence in networks around the UK, MNOs need to implement a cohesive strategy to contain costs while ensuring the highest levels of service delivery. Here, a host of strategic questions and decisions arise – not least in terms of transmission options.

Is fibre the only practical option or does microwave present an additional opportunity for the urban streetscape? If microwave is an acceptable approach, will a Point to Point (P2P) or Mesh configuration be most effective? Similarly, should dark or lit fibre approaches offer the best strategic fit for MNOs now and into the future?

Cellnex UK can help provide the answers. As transmission options grow, we are working with providers in London and beyond to develop an interconnected ecosystem. We will use existing and new infrastructure to connect street-level assets to optimise overall solution efficiency, ensure a viable long-term business case and accelerate MNO urban deployments.

Technology vendors have a critical role to play too. Cellnex UK continues to provide input to manufacturers as they evolve their Small Cell solutions to increase performance and develop equipment with the size, weight, and radio frequency (RF) characteristics that best suit today's streetscape.

Success at street level depends on the availability and location of suitable places to install equipment. The key challenges include cost, assurance of tenure, and the ease with which street furniture can be used for deployment once enabling agreements are in place. Cellnex UK is working with a growing number of asset owners to secure additional agreements on beneficial terms, and to make more sites available – all as part of our commitment to helping MNOs plan their networks with certainty.





5G

Facing the future with confidence

There is undoubtedly a clear need to take action – to adapt network planning in these dense urban areas and evolve from tactical deployments to embrace more strategic and sustainable approaches. With MNOs now actively engaged in trialling or rolling out Small Cells, the opportunities to address capacity issues, serve customers better and move confidently into the 5G era are significant.

Over recent years we have seen growing levels of collaboration, investment and innovation across the ecosystem – from the equipment vendor community, through infrastructure providers, to asset owners. All this has seen barriers to adoption fall, and new and increasingly compelling business cases develop.

There is still work to do, of course. But the opportunities are significant. The demand for ever faster subscriber connectivity continues to grow, as does the fast-maturing Internet of Things (IoT) market. Smart city services and applications are also dependent on the kind of ultra-fast, ultra-reliable connectivity that Small Cells can deliver at street level. Cellnex UK is committed to working with its MNO partners to help communities and businesses embrace these exciting opportunities.





Get in touch

As the UK's largest independent telecoms infrastructure provider, Cellnex UK has access to 200,000+ street furniture assets for Small Cells across 14 London Boroughs, offers hundreds of kiosks nationwide and is continuing to extend provision across the UK. Cellnex UK would welcome the opportunity to discuss our solutions with you and provide our market leading knowledge and experience in adding capacity and scale, at speed, through Small Cells.

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Further reading

See how Cellnex UK is evolving its Small Cells partnership models with MNOs and asset owners to deliver an innovative solution in the London Borough of Hammersmith and Fulham.

Read the full case study [here](#)

