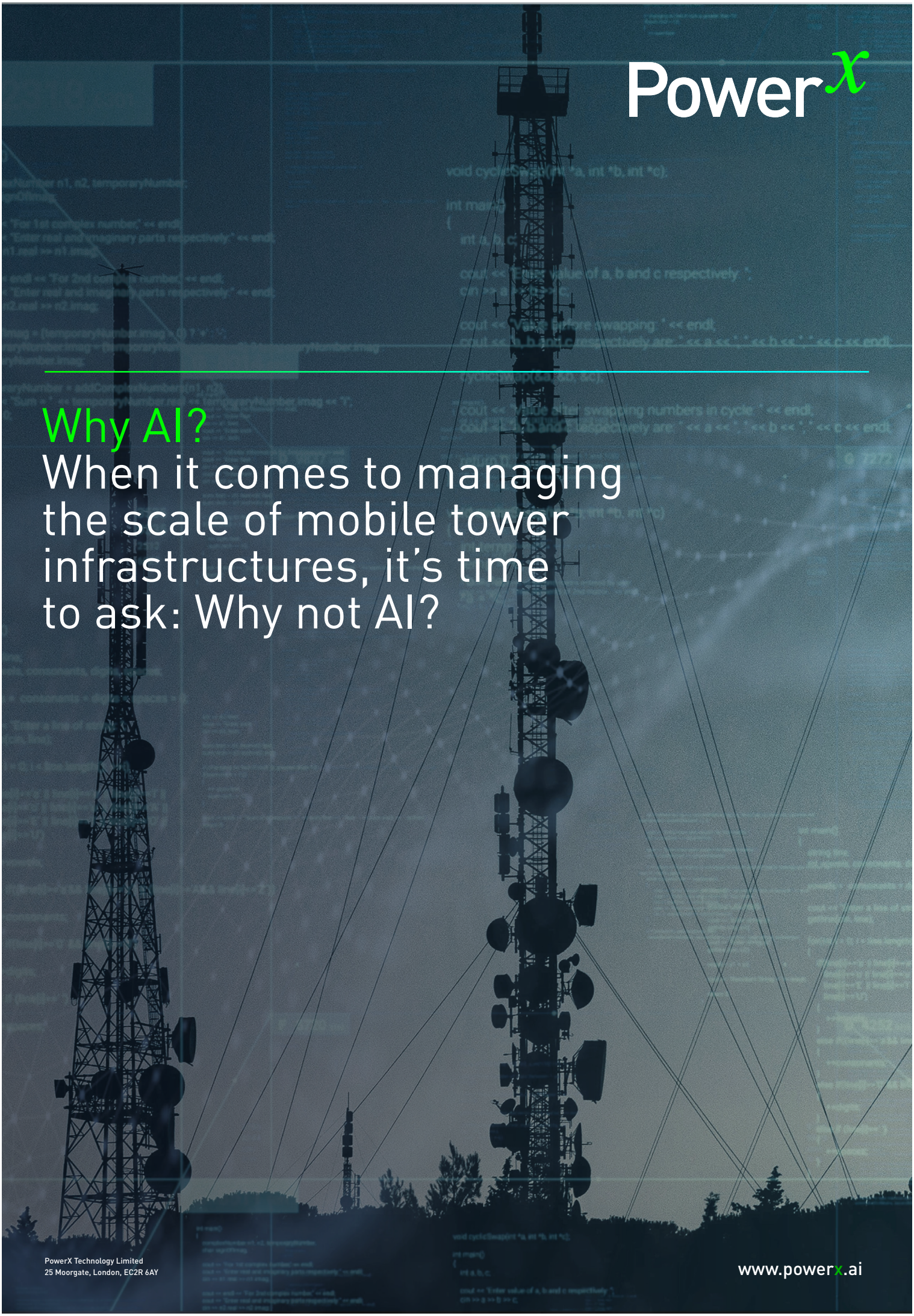

PowerX

Why AI?

When it comes to managing the scale of mobile tower infrastructures, it's time to ask: Why not AI?

PowerX Technology Limited
25 Moorgate, London, EC2R 6AY

www.powerx.ai

Why AI?

Despite its proliferation across industry, artificial intelligence remains something of an enigma. How could it not? The notion of reshaping sectors in a way that doesn't rely on human nature as an initial port of call is a lot to get your head around. Yet, the speed, accuracy, efficiency, and predictive benefits of AI have converted it from being a 'nice to have' option, to a 'must have' tool to futureproof business.

According to Gartner research back in 2019, the number of businesses adopting AI had grown by 270% over the previous four years. Looking ahead, Forbes estimates the AI market will grow by around $240 billion, to $266.92 billion, between 2019 and 2027. Both of these reference points have been accelerated or inflated more recently by a global pandemic that has put additional strain on enterprises; and encouraged them into new and innovative ways to achieve more growth, with less resource.

Most businesses will be able to resonate with the experience of tech innovators knocking on their doors over the past 12 months with promises of AI's benefits, to fix their sudden challenges. And telecommunications as a sector is by no means impervious to this trend and the prospective lure of machine learning.

However, it's fair to say a full connection is yet to be made between the two sectors. Mobile Network Operators (MNOs) and telecom tower companies (TowerCos) up to this point have primarily invested in forward-facing AI projects as they look to optimise bandwidth and traffic allocations, or to leverage chatbots for improved and automated customer support. Yet, for most, that's where the exploration has come to a halt. Aside from early investments in maintenance prediction software, the complex operation of managing thousands of towers spread across large terrains and complicated geographies has been relatively left behind by this technological wave. It has left many struggling to deal with rapidly increasing torrents of data, unmanageable alert protocols, and a continued reliance on the reactive and the manual, rather than the predictive and the automated.

In this whitepaper, we look to unearth why a sector that has been built on innovation and keeping ahead of the curve, isn't exploring the full potential of this crucial tool. It's not to say that AI is a silver bullet - rather it is a set of smart, focussed systems that can augment the best skills in the mobile tower industry, and that can offer a sixth sense for future challenges to come.

Instead of asking, 'why AI?', it's now time for the mobile tower sector to ask: 'why not AI?'

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Demystifying AI

It is fair to suggest that much of the hesitancy that revolves around artificial intelligence is due to misunderstanding or miscommunication of both its role and benefits. If the sector is to convert its inclination from 'why AI?' to 'why not?' then this needs to be based on a more accurate base-level understanding of what to expect when adopting this level of automation.

To this end, the essence of understanding needs to hinge upon AI's role as an augmenter and enricher of current people, processes and projects. Not as a replacement. This perceived battle between 'man and machine' has contributed to much of the concern associated with AI, especially in more traditional or industrial sectors.

Forbes looked to debunk this myth perfectly in a 2019 article, stating that AI "is beginning to transform the way organizations operate in substantial ways, but there is one thing that AI cannot do: be human".

This alludes to ideas of feeling emotion or conceptualising the unknown and refers to all of those daily problem-solving challenges that human experience will always be able to deal with more suitably. It is these same peripheral tasks, however, that are often overlooked or put on the backburner while human workers continue to tackle operations that can more accurately be conducted by machines.

If businesses were to truly introspect on how much time they ask their workers to spend on sifting through granular information across spreadsheets and corresponding data points on numerous systems, then the results would likely be shocking. For every task revolved around forecasting, data assimilation, risk analysis, and a host of additional technical or administrative functions relying on human guesswork, the overarching question should instead be: 'why not AI?'.

What artificial intelligence does is deal with these vast swathes of data and, through algorithms that can be tailored towards your bespoke strategy and objectives, it develops models to solve those pertinent problems. The more data, the higher quality the model, the more evolved, impactful and meaningful the proposed solutions.

Applying this theory to a typical telecoms mast site, and optimising equipment that is already installed, operators explicitly program sets of rules. For example, a rule might be: 'when the grid is unavailable, switch on the generator'. However, when conducted manually, this is as deep or insightful as that instruction can be. Conversely, a machine learning algorithm would assess data from sensors across the site in order to create predictions about what will happen in critical areas looking ahead. This could include information on the load, mobile traffic, the backhaul status, grid availability, or even weather conditions that would impact the viability and scope of renewable energy sources. All of these parameters then inform the best way to ensure that initial goal of site availability and minimising costs.

AI isn't a silver bullet to solve all problems. It's a tool to augment what you as a company, you as individuals, and you as departmental teams have already set out to accomplish. All by leveraging extents of data that are incomprehensible to the human brain.

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Adding value now, not just in the future

The idea of AI and conversations around its usage have been escalating for two-three years now, yet for many it is still seen as a tech buzzword rather than a viable solution, now. From a mobile tower infrastructure perspective specifically, this conflict between today's reality and tomorrow's possibility is actually playing out in the same space.

On one side of the coin, tower infrastructure operators seem to be acknowledging the actual technology and concept behind machine learning, to a point where investments are occurring. Real-world examples have been seen towards the top of the food chain with the likes of Vodafone introducing its AI-driven chatbot, TOBi to the tune of a 68% improvement in customer satisfaction ratings. With this in mind, there must be faith in the general impact of predictive capabilities, and automated solutions' role in traditionally manual activities.

Therefore, there should be no reason why that same considered leap can't be made across network operations too. For TowerCos, PowerX's AI solution processes and charts hundreds of data points in order to deliver real-time insights that help clients save millions of dollars in operational savings, and as much as 50% in CO_2 emission savings.

Applied to a tangible example, PowerX' partnership with a leading operator has seen the former use AI to simulate options to offset diesel dependency across a wide number of sites - in particular, in difficult, remote or off-grid locations. AI simulated models to respond to rising capacity demands, and as a result the operations team were able to create a more accurate upgrade plan. This included delivering large operational benefits with new investment, building a more resilient and cost-efficient infrastructure to handle grid outages, and improving their use of renewable energy in their mission to adhere to the continent's green values and initiatives.

In this case, and indeed all use cases, the more data points that are utilised, the more the performance of telecom towers can be transformed. And this is why the proposed snowball effect is so pivotal. At present, companies' resistance to implementing predictive capabilities on the infrastructural or operations side of the equation means missing out on all of the enriching data that already exists in their organisations.

As soon as AI is used as a way to leverage this dormant insight and trigger continuous improvement, even more data will be generated, and the positive cycle gains momentum.

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A step change for towercos

Beyond realising the benefits of AI, by making the transition to such a ground-breaking tech solution, it also paves the way for wider digital transformation ambitions. A culture of understanding, communication, transparency across the workforce, and data driving development will already be in place. This then opens the door to third party facilitators who can further augment your own strengths to better realise industry 4.0 goals.

The initial step change may seem stark and significant at that moment in time, but really it's a step towards longer-term sustainability. PowerX AI is continuous and its efficiencies can be monitored forever, so the yielded savings and improvements become part of the fabric if your business; not just an initial consequence of a new investment.

More specifically, for this sector of industry, AI can play a similar role in solving age-old challenges long into the future. The art of detecting anomalies, predicting sensor readings, identifying and foreseeing incidents across the infrastructure, harnessing unmanageable amounts of data, scaling the capacity of engineers... too few Tower Cos have made the link between these very familiar issues and how machine learning can address each.

Through PowerX's own client offerings, as many as 80 or even more streams of sensor readings can record information that is pertinent to a tower's operations – from currents running through the rectifier, to whether a door has been left open or not, to wind speeds at the top of the building. Another prime example pertains to operators' air conditioning units which are often unpredictable amid varying temperatures and weather conditions. Inevitably, faults traditionally lead to lost time and money as upgrades or maintenance take place belatedly. AI would have foreseen such an issue arising and reported the concern at a much earlier stage.

Every conceivable operational hazard can be mitigated with the benefit of foresight. And just because traditional engineers don't have this capacity of insight doesn't mean they are made redundant by AI's arrival. 'Change' as far as they are concerned, revolves around having more accurate, meaningful and expansive information to work from, to dictate future strategy and improvement.

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Keeping ahead of the global data curve

The augmentation of expertise, reductions in human error and faster reactions and updates across tens of thousands of sites makes AI a no brainer when it comes to network operations. There is no doubt these benefits will be realised in time, but there is also a certain criticality when it comes to the rate of this realisation, and subsequent adoption.

Data proliferation is exponential in both established and emerging markets already, and it's vital that the sector doesn't fall behind the curve.

In Africa, despite economic uncertainty brought about by the COVID-19 pandemic, more than $52 billion will be invested in mobile infrastructure rollouts between 2019 and 2025. Similarly, in South Asia, 33% of the population was connected to the mobile internet in mid-2020, a number which has almost doubled since 2014. Meanwhile, McKinsey projects the number of IoT devices to increase threefold between 2018-2023, implicating a total of 40 billion connected devices across the globe.

And this scope certainly isn't going to slow down amid the imminent rollout of 5G. The amount of data enabled as a result of this global upgrade will compound the challenge of having more data to work with, more capacity required, faster decisions expected, and more upgrades in order to cope. This pace of change will quickly and starkly shine a light on network resilience, operators' readiness to adhere to 'smart infrastructure', an ability to link passive and active network data and to model respective costs, and to actually increase the value of their towers through 5G.

To achieve this level of transformation and to make sense of this data surge is simply impossible without automated, algorithmic help. And delaying ways to try and manage it more effectively won't improve that long-term outlook.

Far more than that, though, AI isn't just a coping mechanism. It is a way to evolve, improve, differentiate, and futureproof – four aspects that companies usually wouldn't think twice about if offered a solution that ticks those boxes.

The next step towards complete adoption is understanding both AI's advantages and its limitations. Taking the enigma out of the solution will make it more attainable, and will finally change the discussion from 'why AI?', to 'why not AI'?.

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About Power^{x}

Power^{x} exists to help MNOs and TowerCos meet consumer demand for greater connectivity in the most resilient, efficient, and sustainable way.

Power^{x}, a UK-based company, brings intelligence to towers.

It is the world's first artificial intelligence (AI) platform dedicated to the Telecom industry that puts AI at the heart of day-to-day operations to boost the performance and efficiencies of cell phone towers. With Power^{x} AI-led data-driven approach, tower operators can monitor, control and apply site-level efficiencies at scale for thousands of towers across entire networks – in real-time, all the time.

Power^{x} is working with leading Tower companies and Mobile Operators internationally to help them harness data intelligence so they can build infrastructure resilience, optimise tower operations and maintenance efficiency, whilst reducing costs and carbon emissions across their cell phone tower network, in a sustainable and scalable way.

For more information, contact us: info@powerx.ai