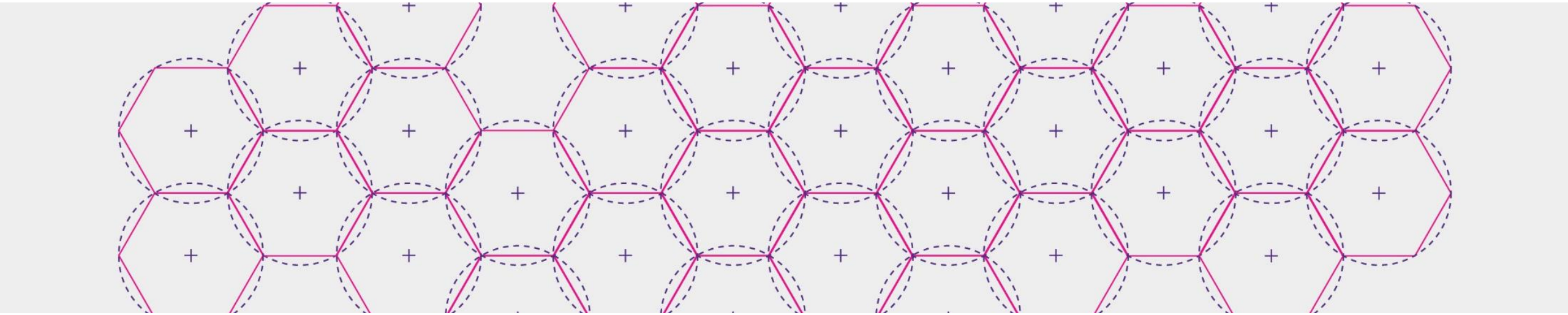
13th Annual European Spectrum Management Conference

Increasing spectrum efficiency with private LTE

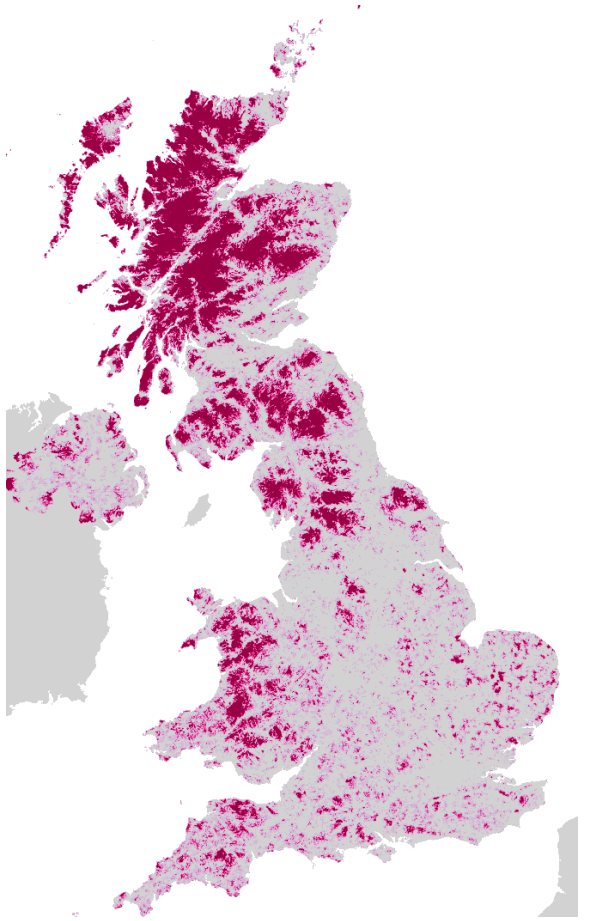
20 June 2018

Tim Miller



There are still many areas with poor mobile broadband connectivity

- Ofcom has consulted on imposing coverage obligations on 700 MHz spectrum
- It has identified areas and properties with no or poor mobile broadband
- Although operators are increasing geographic coverage, it remains under 100%



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Connectivity is crucial for businesses of all types

- Industry 4.0 relies on strong, flexible, stable connections to drive automation
- Private networks can be used to provide:
  - Secure, high bandwidth connections
  - Coverage where it is currently unused

First industrial revolution	Second industrial revolution	Third industrial revolution	Fourth industrial revolution
• Introduction of mechanical production facilities with the help of water and steam power.	• Introduction of division of labour and mass production with the help of electrical energy.	• Use of electronic and IT systems that further automate production.	• Use of cyber-physical systems.

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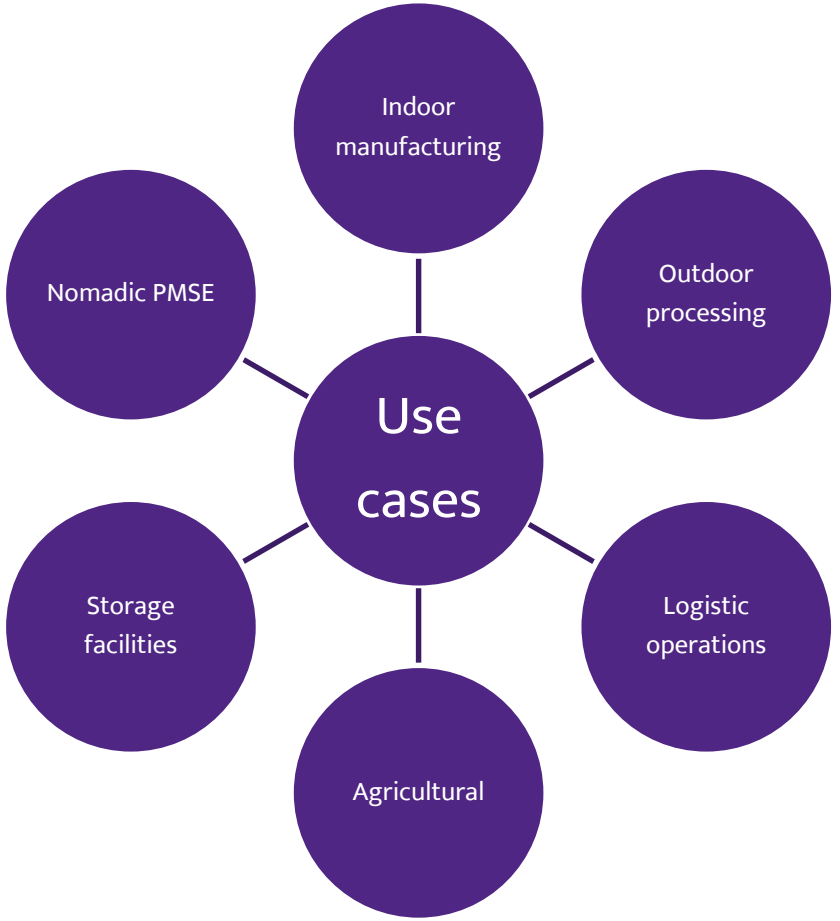
The requirements for industry are not catered for by operators

- Many manufacturing plants or transport locations are in remote areas – often with no coverage
- Even where there is a network, it rarely uses high-frequency spectrum to provide high bandwidth and low latency
- We looked at six key use cases to identify how private LTE networks could be beneficial
- It is unhelpful to think of 'verticals' as a single issue – needs and uses are very different



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There are a number of ways of getting the spectrum needed

Dedicated allocations in 3500 MHz	Spectrum or network slicing on MNO networks	Sharing with other services like fixed links	Spectrum sharing with MNOs
• Will there be enough capacity for every user? • Demand is very location-specific – we lose capacity everywhere else	• As before, networks aren't always available	• Ecosystems don't exist	• Requires agreement with MNOs ...

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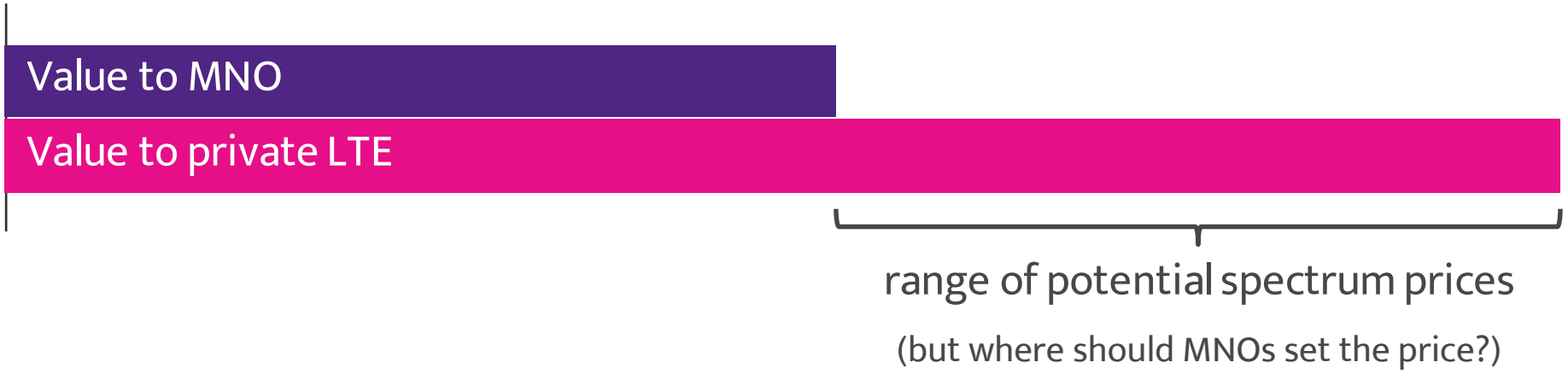
All stakeholders need appropriate incentives

- In most cases, industry has an alternative to using private LTE network
  - This limits the amount they are prepared to pay to roll it out
  - The value they will pay is relatively low
- In most areas, MNOs are not looking to roll out their own networks
  - The opportunity cost of sharing spectrum – particularly high-frequency – is virtually zero
  - If spectrum is needed in the future it can be reclaimed



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Pareto improvements are rare – we should grab one when we see it

- Sharing spectrum with private LTE will make mobile operators no worse off
- Private LTE networks have the potential to greatly increase efficiency

- What might stop it?
  - Governments and regulators who don't allow flexible sharing on a geographic basis
  - Mobile operators not recognising potential for sharing
  - High administration and licencing costs for private LTE networks
  - Slow access to spectrum – timely network availability is key

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Download our reports to find out more

http://plumconsulting.co.uk/spectrum-for-private-lte/

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