Use of 3400/3600-4200 MHz for mobile broadband in Hungary, Italy, Sweden and the UK

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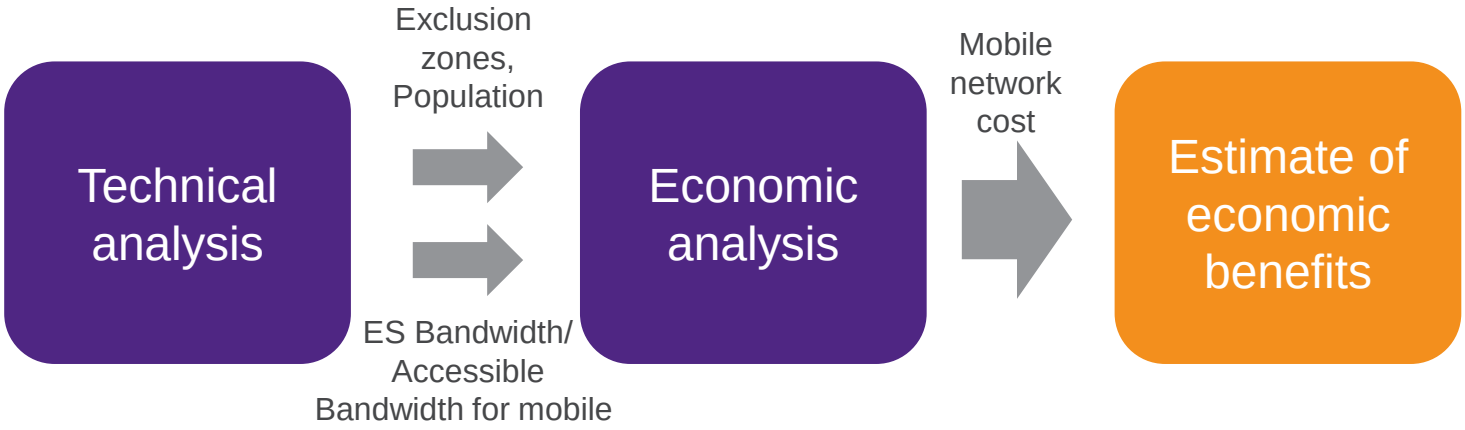
Agenda

- Methodology
- Economic benefit
- Use of LSA

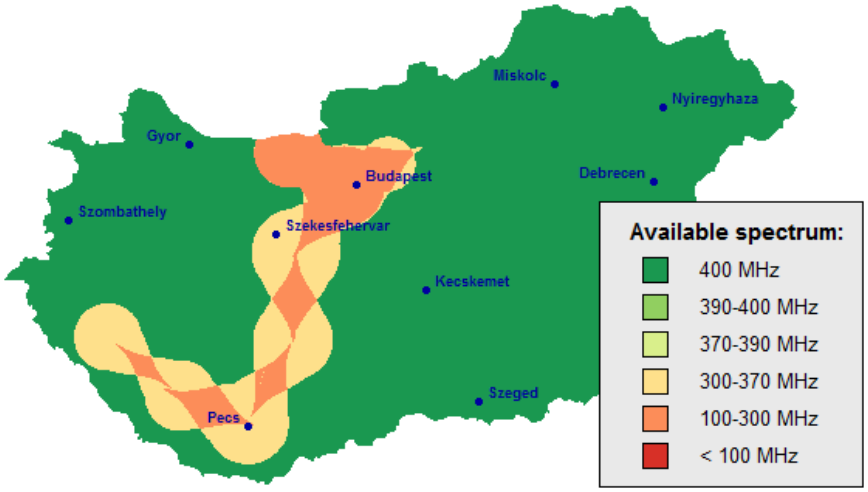
- Report can be found at http://plumconsulting.co.uk/pdfs/Plum_Jun2015_Use_of_C-Band_for_mobile_broadband_in_Hungary_Italy_Sweden_and_UK.pdf

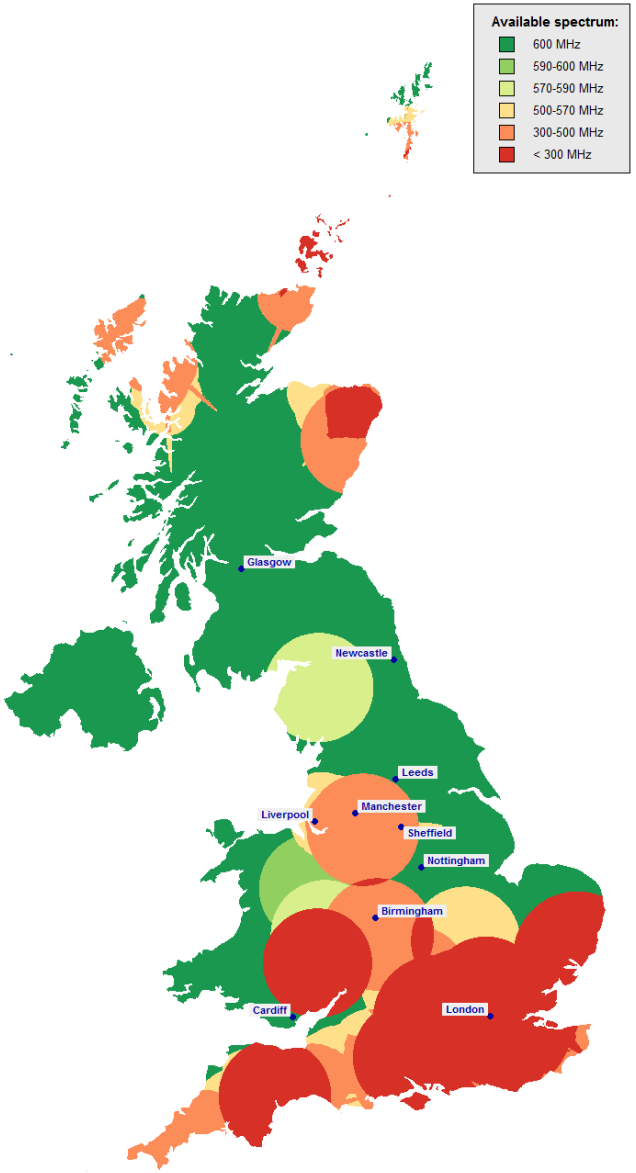
Methodology



- The methodology comprises three functions:
  - **Technical analysis:** determine size of areas where potential interference between IMT base stations and satellite earth stations / fixed links could occur
  - **Economic analysis:** determines the total spectrum available for IMT and estimate network capacity in a number of frequency scenarios to determine network costs
  - **Benefit estimation:** calculates the avoided costs of having access to spectrum in the range 3400/3600-4200 MHz. expressed in 2018 NPV terms
- Use of LSA at 3400/3600-4200 MHz
  - Administrations need to establish national sharing frameworks for sharing between MFCN and satellite / fixed links. These sharing mechanisms could be implemented using LSA

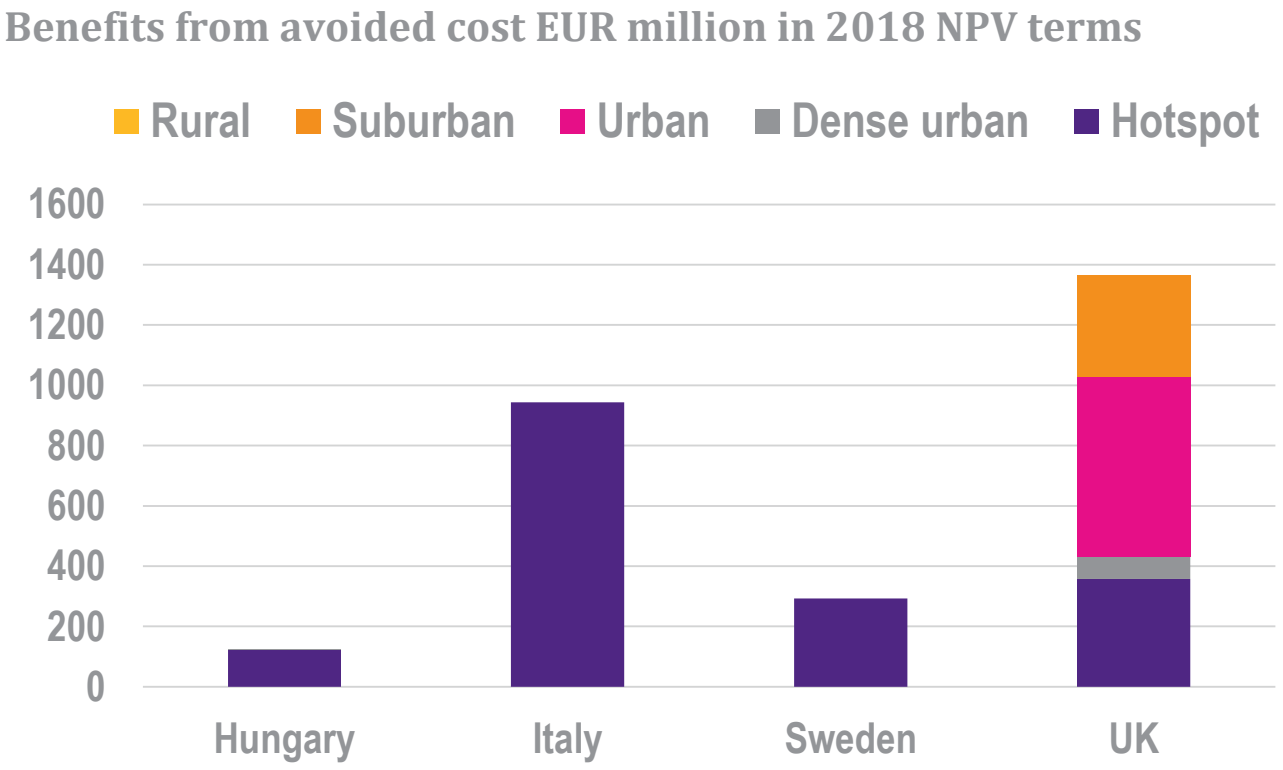
Technical output (examples)





- For Hungary (fixed links)
  - Spectrum in 3800-4200 MHz that could be available for IMT small cell use
- For the UK (fixed links and satellite)
  - Spectrum that could be available in 3600-4200 MHz for IMT macro cell use

Results

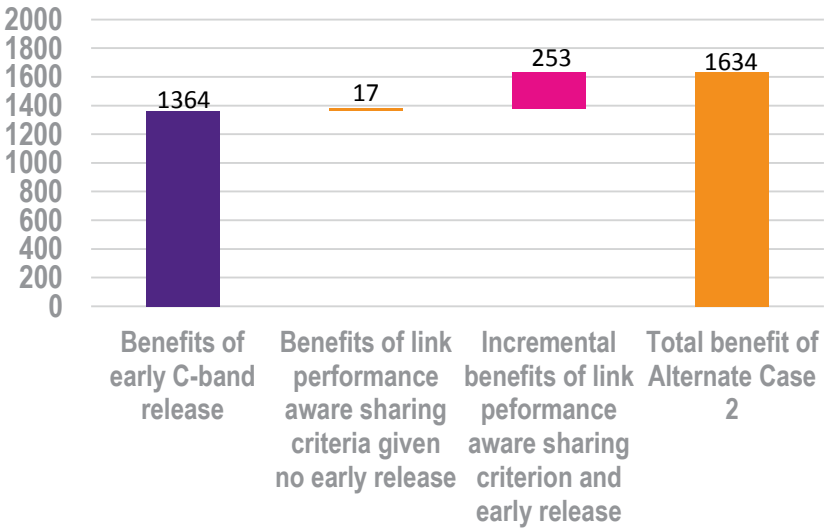


Source: Plum Consulting

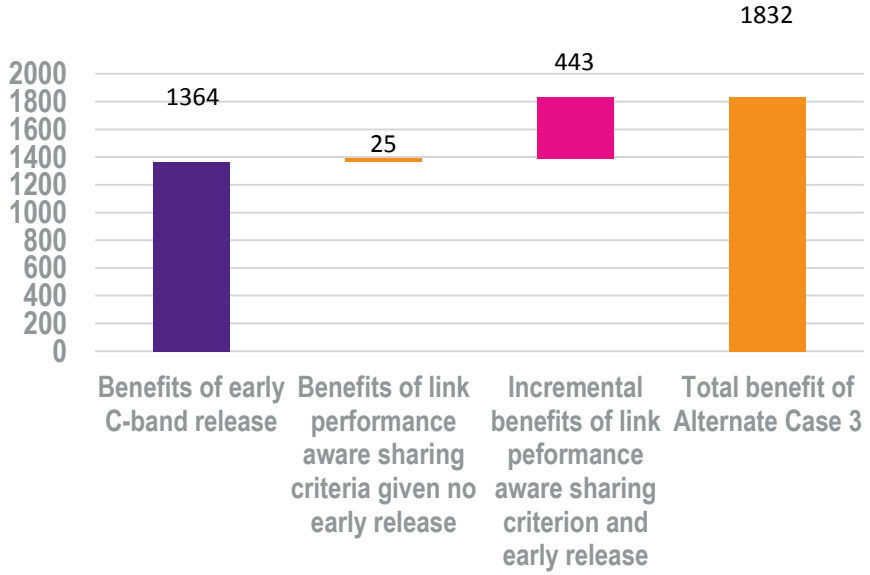
- In all cases there is a positive avoided cost benefit from availability of 3400/3600-4200 MHz spectrum
  - The actual magnitude depends on a number of factors including demographics, density of incumbent services and projected traffic growth

Use of LSA

Benefits of link performance aware scenario in UK
NPV of benefits in EUR million



Benefits of advanced sharing scenario in UK
NPV of benefits in EUR million



Source: Plum Consulting

- LSA could play a key role in facilitating sharing between services
  - Link performance aware: considers a range of satellite and earth station operating characteristics to determine possible margins to mitigate interference
  - Advanced frequency sharing: builds on the above approach and looks at spectrum not used by emissions in the accessible bandwidth at an earth station

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