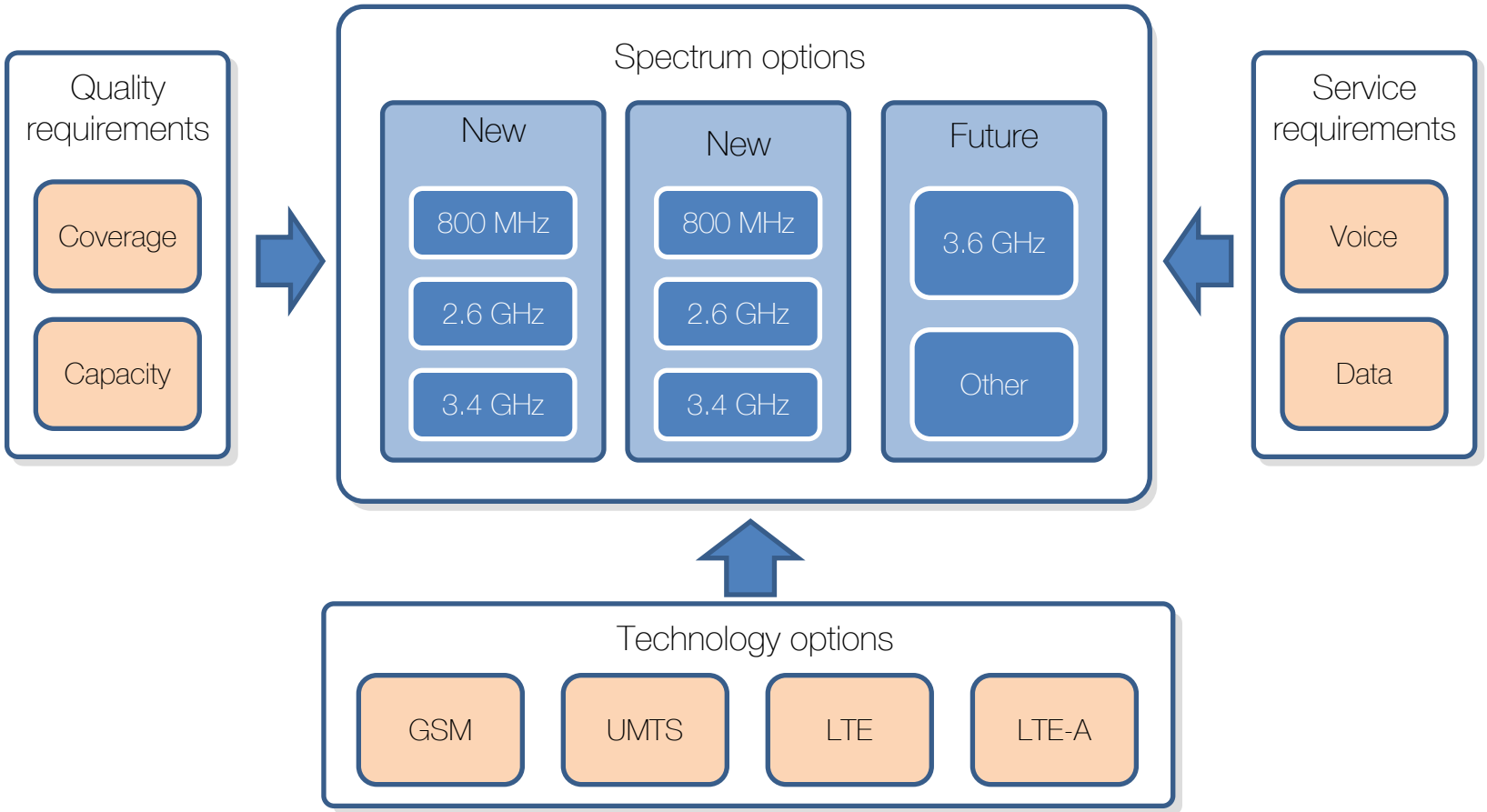
Optimising the use of spectrum

Steve Blythe
Director of Spectrum Strategy, Orange

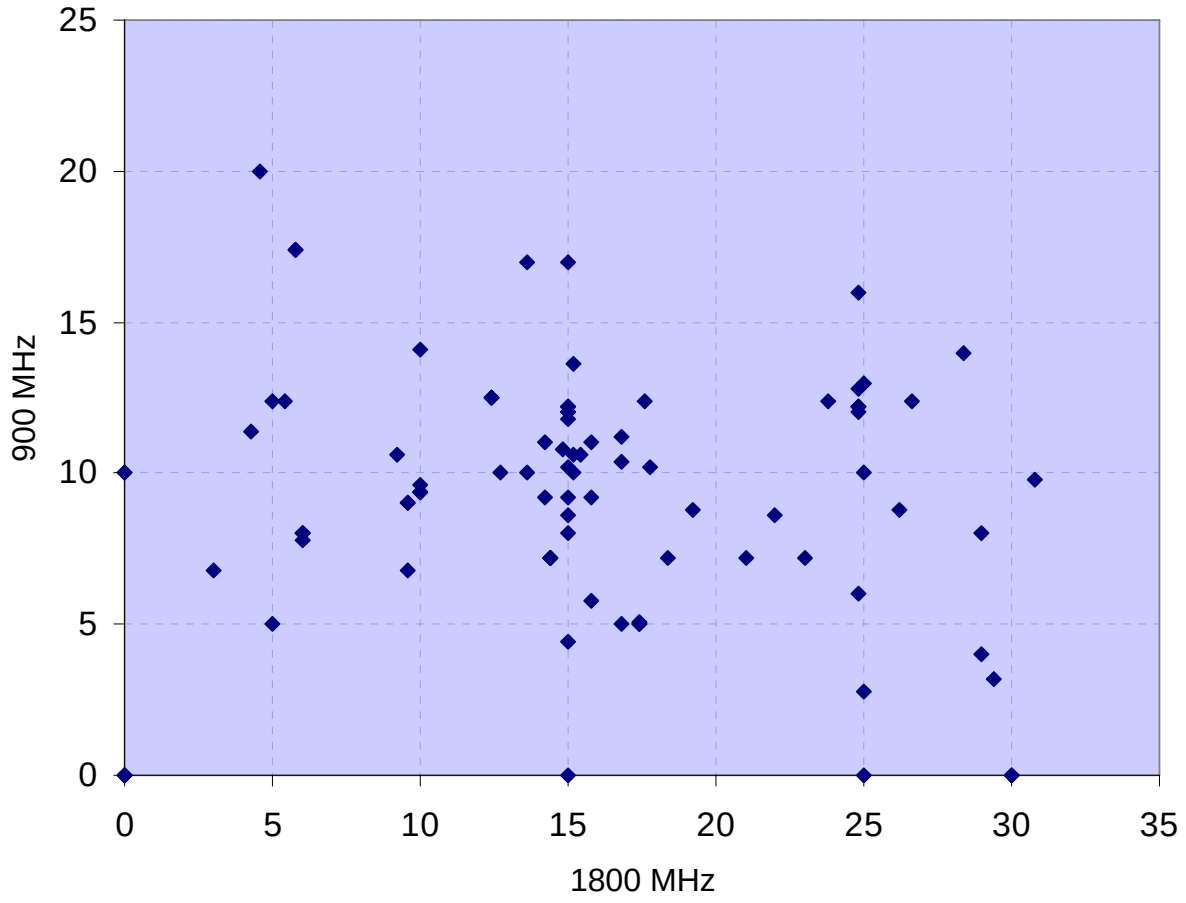
The world of spectrum becoming complex - more bands & increasing demands on usage. What is the optimal strategy?



The starting point has to be existing holdings

In terms of GSM spectrum holdings, there is a huge variation across Europe. This drives issues for operators

900 & 1800 MHz spectrum distribution by European operators



- Country position determined by many factors:
  - Historical timing of new entrants
  - Number of operators in market
  - Regulatory policy on spectrum distribution
  - ……

Source: GSMA

Spectrum inequality causes scale issues for international operators

For an operator to determine its optimal spectrum strategy, they will need to consider some basic questions

Timing	▪ What additional spectrum become available and when? ▪ What is the demand/supply balance? ▪ What is the forecasted growth?
Network management	▪ How can existing legacy investments be fully leveraged? ▪ How quickly can legacy devices be swapped out? ▪ How can the number of networks managed be minimised?
Cost of coverage	▪ Now coverage is again key differentiator (mobile broadband), how can this be delivered cost effectively? ▪ How quickly can coverage be delivered?
Cost of capacity	▪ How can data usage explosion be managed profitably? ▪ Which technologies are required to deliver the increasing capacity requirements?
Voice network strategy	▪ Voice is still the primary revenue generating service but is more difficult to deliver than data. How can this service be maintained?

A strategy based upon spectrum for coverage & spectrum for capacity, building on existing investments, is the key to financial efficiency & maximising welfare benefits

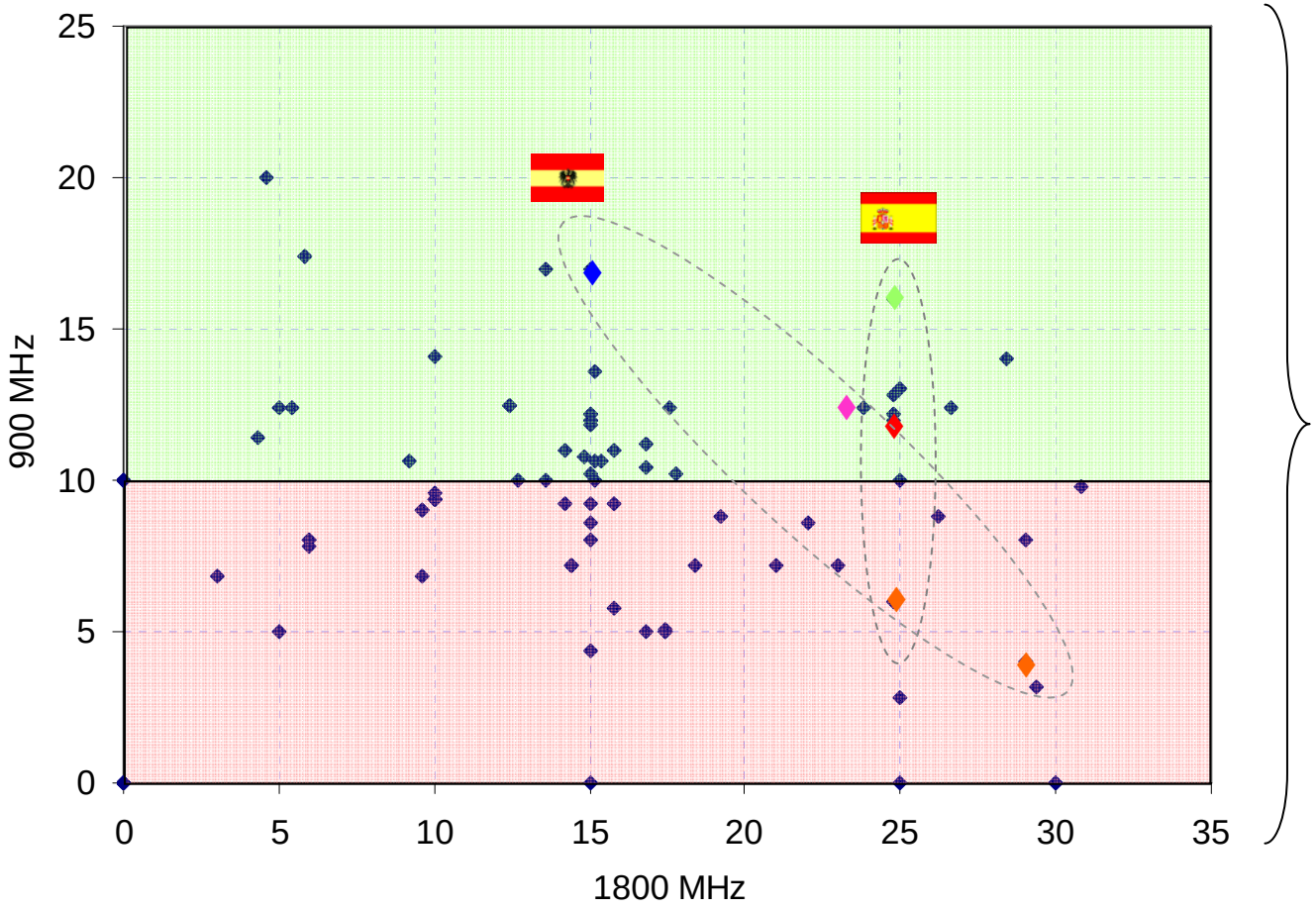
What is clear is UMTS is a key technology, either as a means of transition or as a long-term strategy

- The use of GSM networks is declining, but a legacy network will need to be supported for a significant time
- UMTS adoption is increasing fast with the advent of HSPA advancements delivering the true 3G experience
- UMTS technology (UMTS2100 & UMTS900) is here now and is proven and well adopted
- HSPA will evolve into near LTE speeds with the development of HSPA+
- LTE technology is being developed, and first commercial trials will occur in 2010/11, but mass-market use of the technology will not occur before 2014/15
- LTE is unlikely to support voice (may come much later)

- UMTS has a place to play for the next 5 to10 years at least
- Therefore, a mixed UMTS900 & UMTS2100 strategy is key

Necessity for GSM900 operators to have enough spectrum to deploy UMTS900 & manage their legacy network

Example countries with significant asymmetry



For an existing GSM900 operator, efficient use of 900 MHz spectrum can only be achieved with a 10MHz or more holding (5 MHz for GSM legacy support & 5MHZ for a UMTS carrier)

A primary strategy of a redistribution of 900 MHz spectrum to reduce any asymmetry is a necessity to deliver efficient spectrum usage

Key highlights

- New spectrum awards will provide new opportunities for operators
- However, maximising the efficient usage of existing spectrum bands has to be the prime objective for regulators
- Cost effective coverage deployment for mobile broadband is going to be key differentiator for operators: 900 MHz spectrum is key (800 MHz does not provide an equivalent solution – arrives much later & requires new equipment & devices)
- Asymmetric holdings of 900 MHz spectrum drive inefficiencies and reduces overall national economic welfare
- For countries with such inequalities, 900 MHz spectrum redistribution as part of the new GSM Directive implementation needs to be considered as a priority