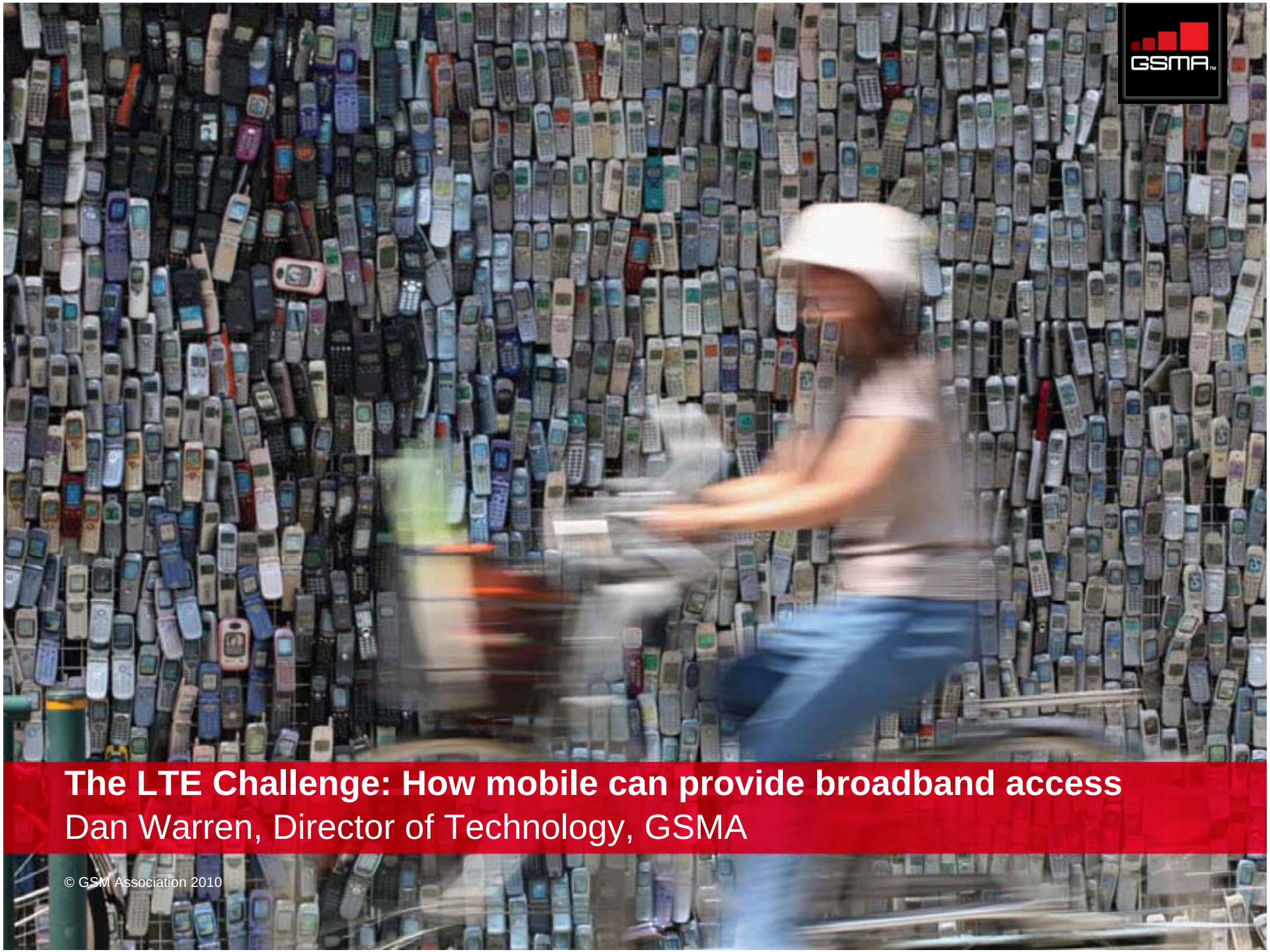
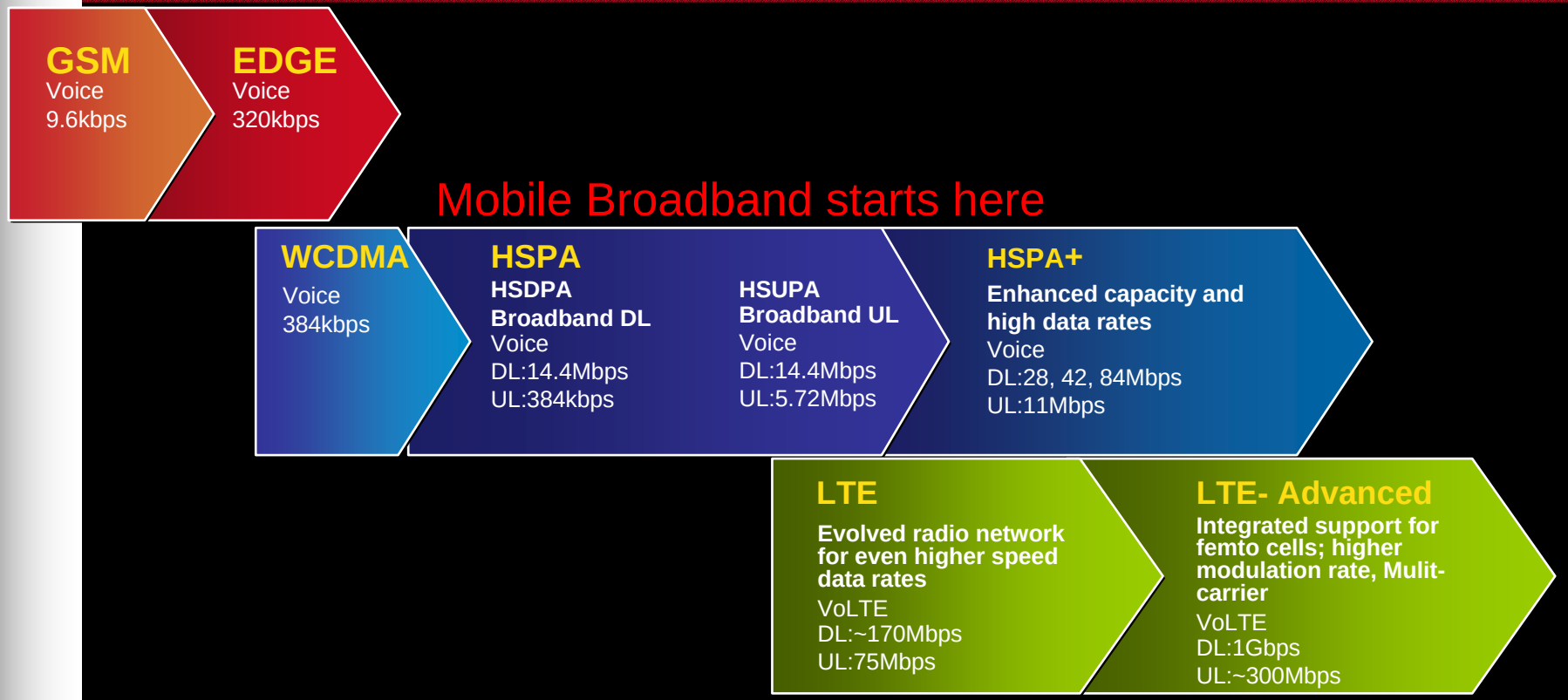


The LTE Challenge: How mobile can provide broadband access

Dan Warren, Director of Technology, GSMA

Increasing bandwidths

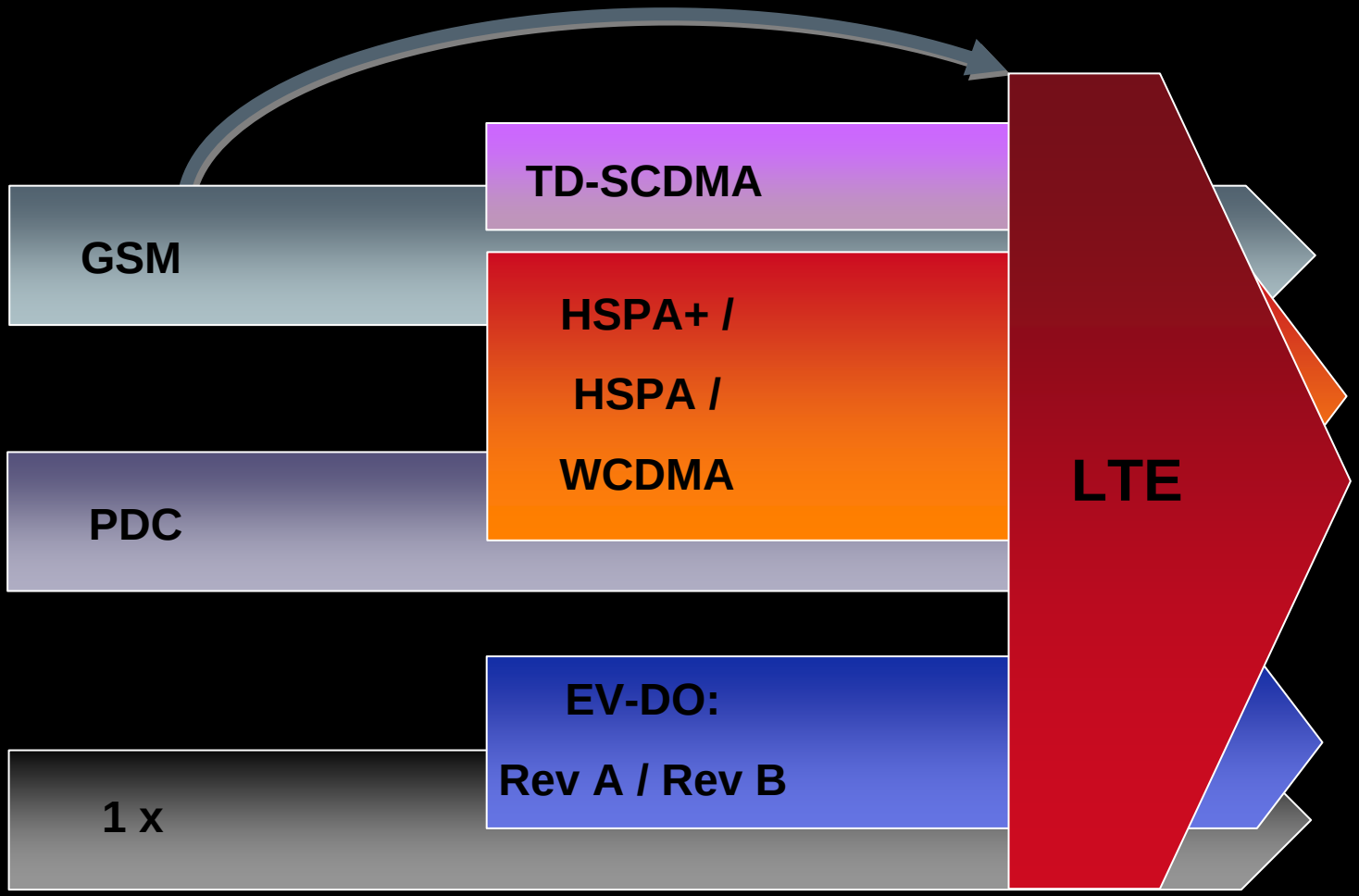
Mobile Broadband



- Backwards and forwards compatibility, ensures constant connection
- Leverages GSM ecosystem scale
- Utilises existing mobile spectrum bands

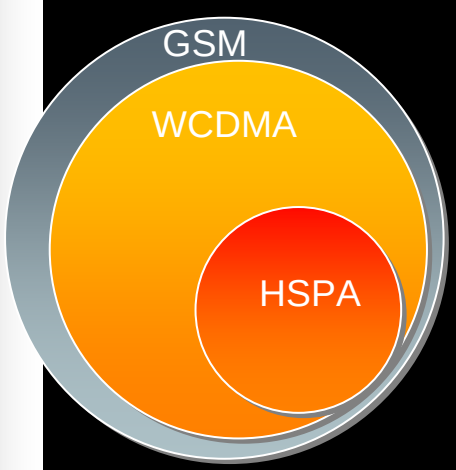
All Paths Converge on LTE

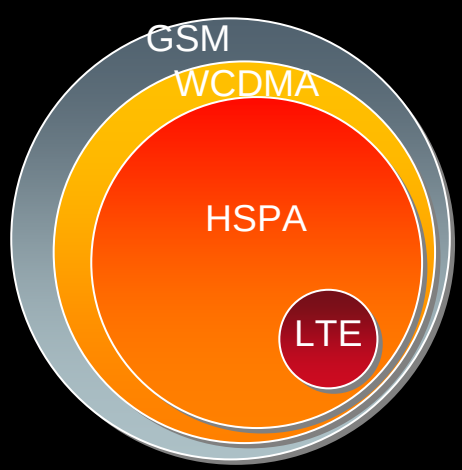
Mobile Broadband

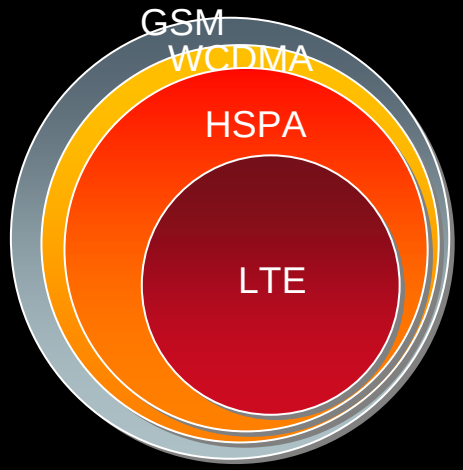


Scale matters

Mobile Broadband



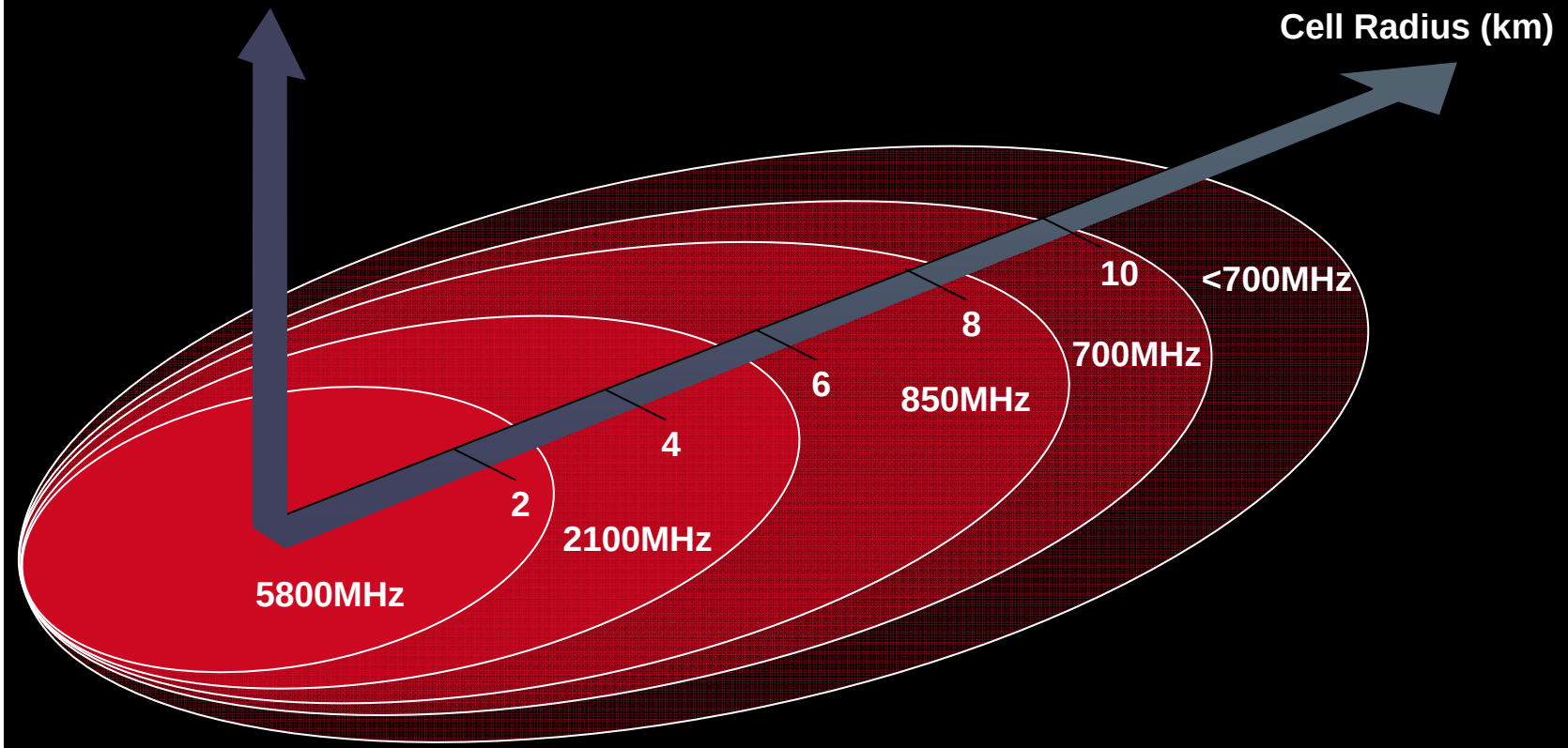




	YE2008	YE2009	YE2010	YE2011	YE2012	YE2013	YE2014	YE2015
GSM	3278M	3695M	4133M	4466M	4597M	4545M	4334M	4026M
WCDMA	200M	258M	300M	323M	330M	318M	286M	196M
HSPA	103M	216M	391M	622M	919M	1273M	1676M	2112M
LTE		0.002M	0.3M	4.1M	20.9M	72.9M	164M	299M

Effect of frequency on range (SCF study)

Mobile Broadband

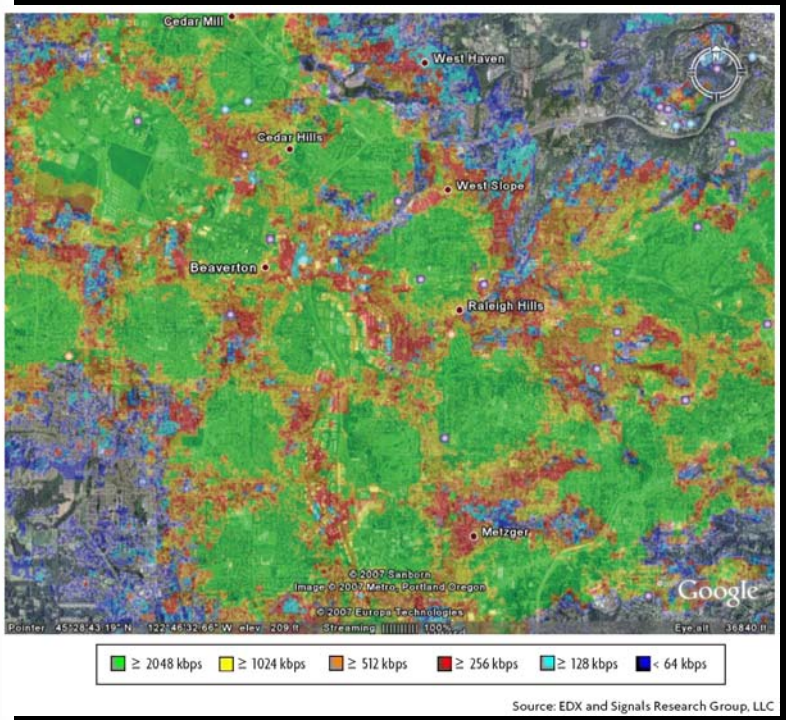


The propagation characteristics of spectrum

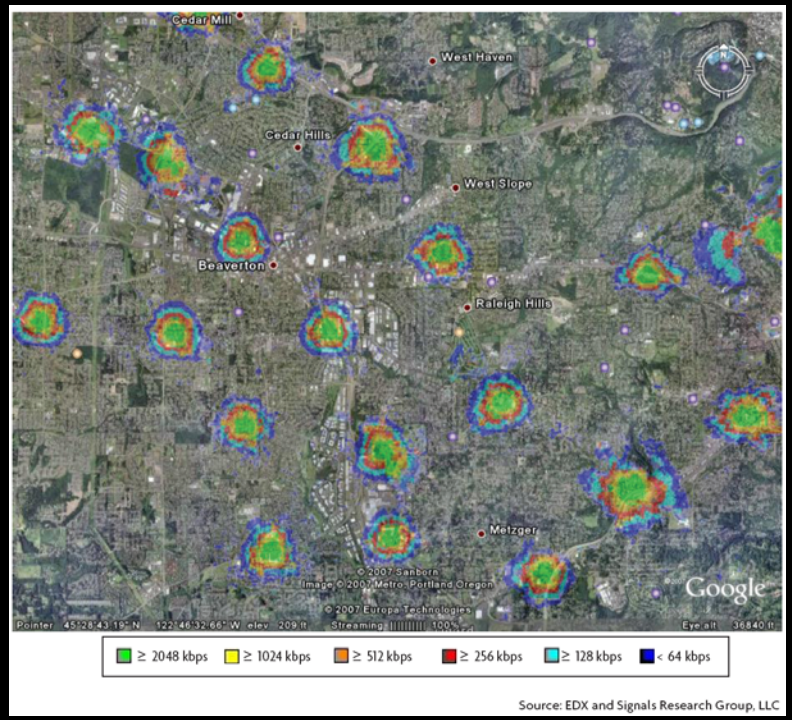
Source: BBC R&D

Importance of getting the 'right spectrum'

GSMA Mobile Broadband



Source: EDX and Signals Research Group, LLC



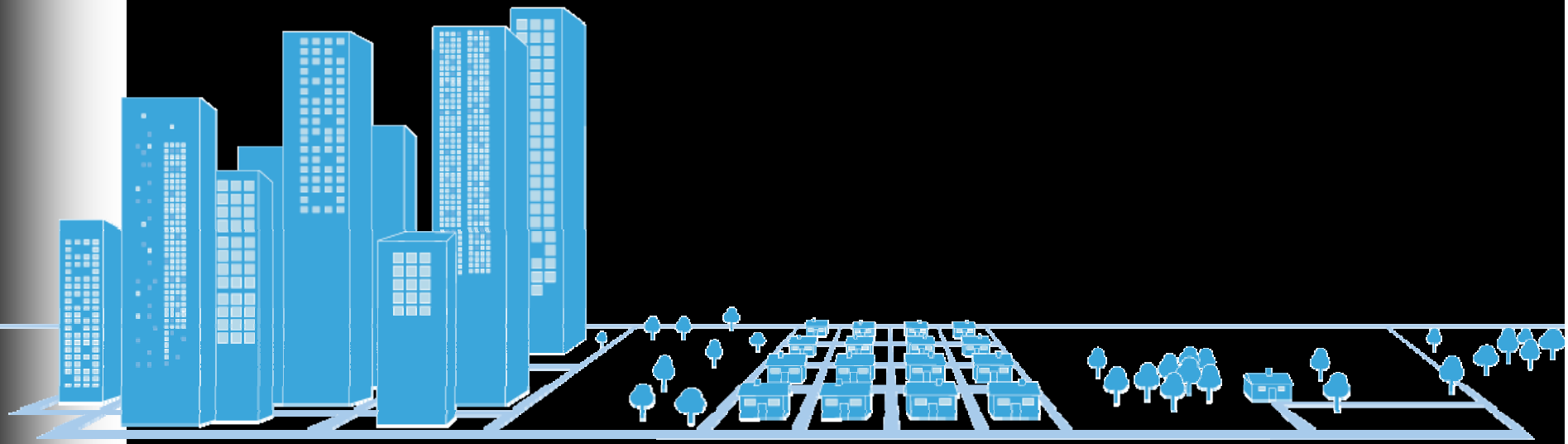
Source: EDX and Signals Research Group, LLC

This is the first in a series of studies by EDX, showing uplink coverage for a well- designed network at 700MHz, compared to a network based on the same cell sites, but using 2600MHz.

Spectrum Strategy

GSMA Mobile Broadband

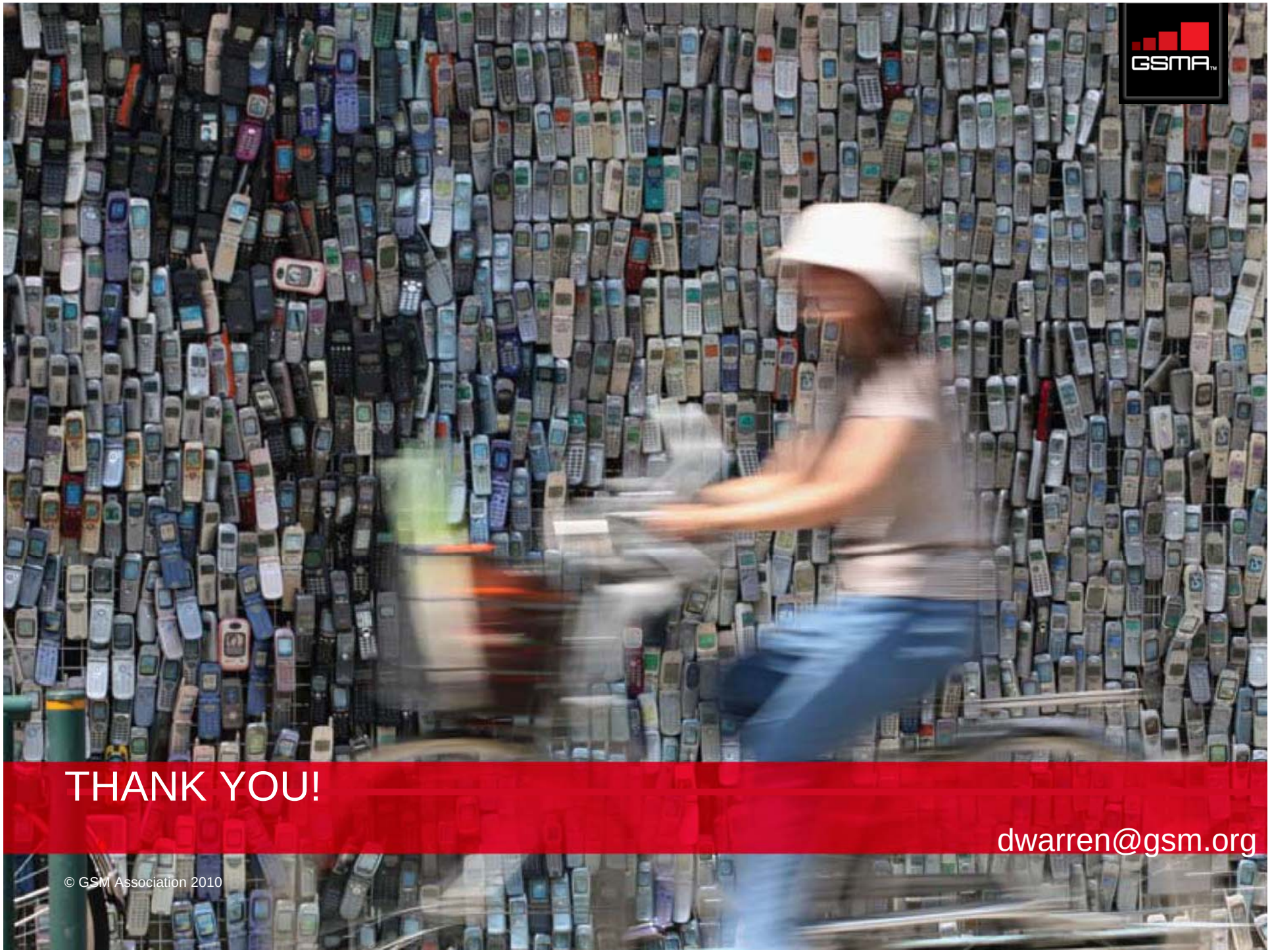
Urban Suburban Rural



700/800 MHz		LTE
850/900 MHz	GSM / EDGE HSPA	
1800/1900 MHz	GSM / EDGE HSPA LTE	
2100 MHz	HSPA	
2600 MHz	LTE	

Conclusions

- The availability of Digital Dividend spectrum at the point when LTE deployments are beginning is the ‘perfect storm’
  - Mobile Broadband can play a significant role in filling rural ‘Not Spots’.
- The complimentary ‘coverage band’ in 800MHz and ‘capacity band’ in 2.6GHz can be supplemented by deployment of LTE in 1800MHz
- LTE will be the unifying Mobile technology for all markets in the world
  - Generates scale, ecosystem, interoperability and ultimately a genuine fully-connected service model.



THANK YOU!

dwarren@gsm.org