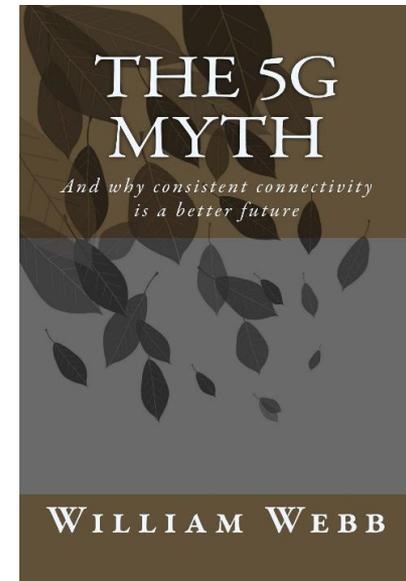# 5G – A flawed vision

And why coverage is the key issue

Professor William Webb

March 2017

THE 5G MYTH

And why consistent connectivity is a better future

WILLIAM WEBB

# The 5G community has mapped out the next decade for us, hasn't it?

- Incredibly fast – Gbits/s speeds

- Incredible capacity – 1000x current networks

- Broadband everywhere

- Massive machine connectivity

- Ultra-low latency and complete reliability

5G will be instrumental in the next evolution of connected devices, including cars, smart homes, and wearables, due to its superior network speeds (10 times faster than 4G) and capacity (1,000 times the capacity of 4G). [Business Insider]

There is a general industry consensus which indicates that traffic volumes will be multiplied 1,000 times; 100 times more devices will require connectivity; some applications will demand data rates 100 times the speeds that average networks currently deliver; some will require near-zero latency [Ericsson]

Optus and Huawei have claimed a single user transmission speed of 35 gigabits per second was achieved over the 73 GHz band in a 5G speed trial just completed in Sydney. [Huawei]

# But sometimes more speed isn't the right answer

Commercial Airlines Over Time
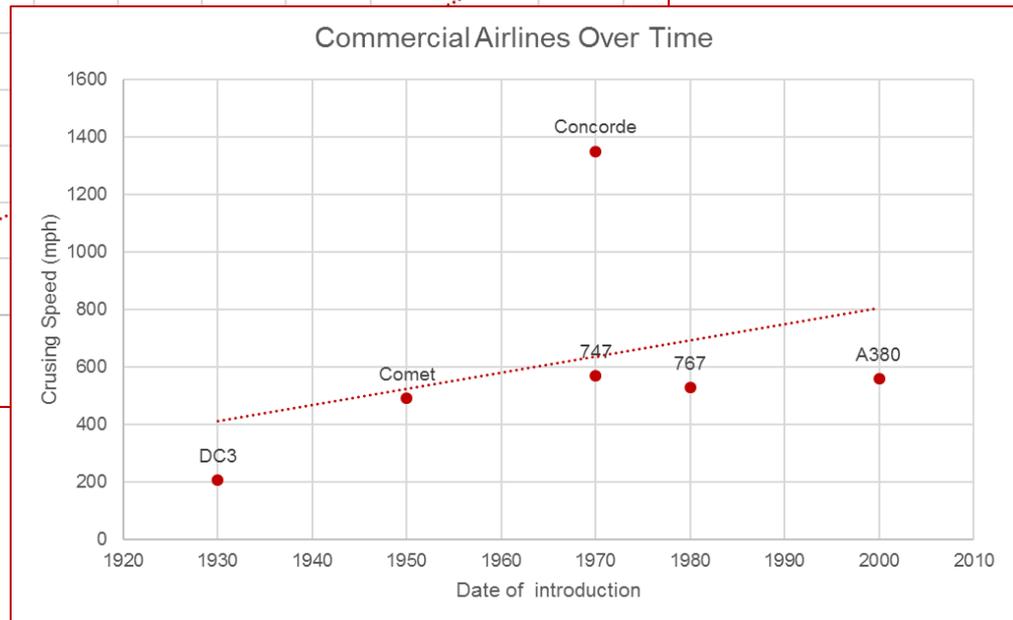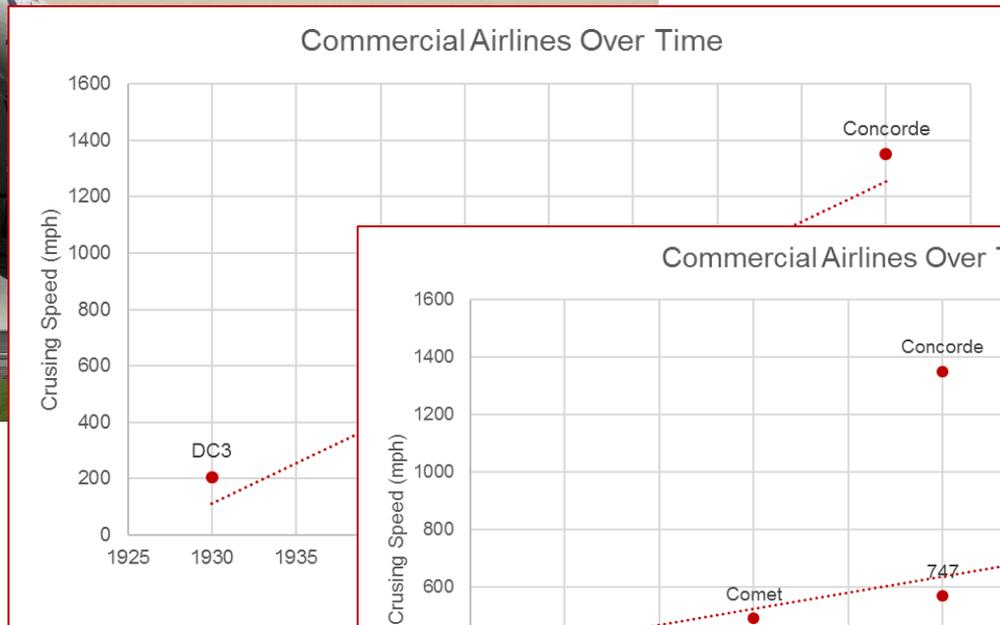
Why higher speed is not needed

Latency per Bandwidth
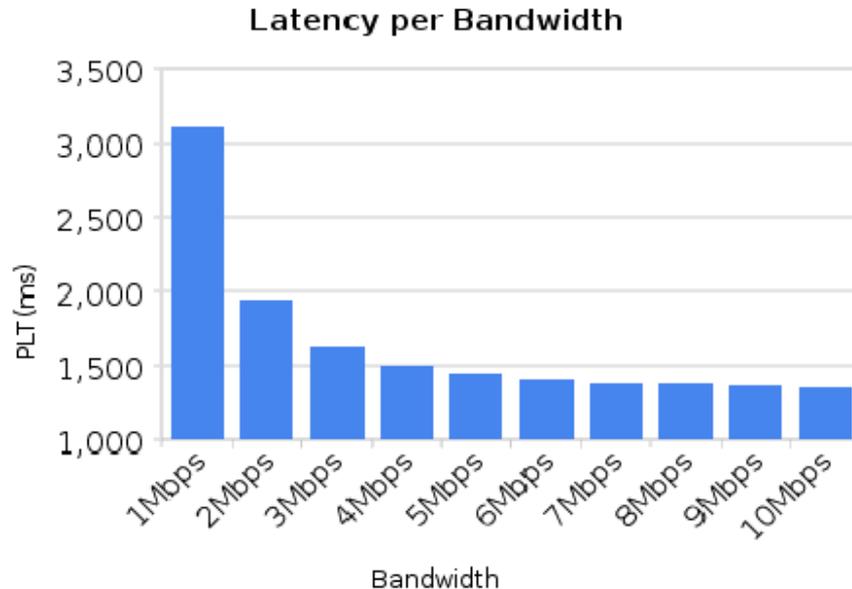
BCG said: "Put simply, telcos have overrated the role that speed plays in customer satisfaction. For video, we saw that once speeds reach 1.5 Mbps, further increases have little or no impact on users' perception of performance."

Only 10x capacity is needed – and 4G can do that
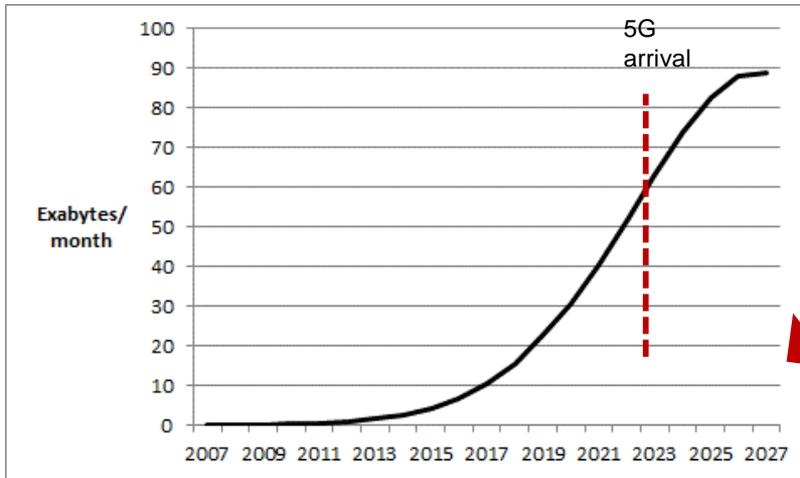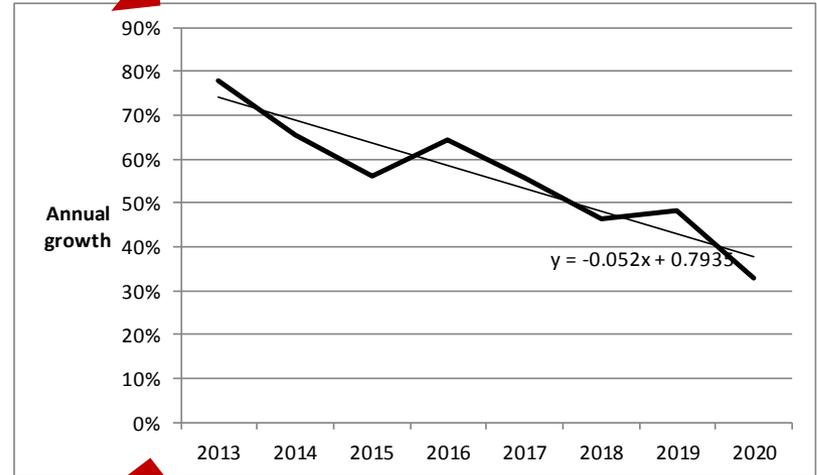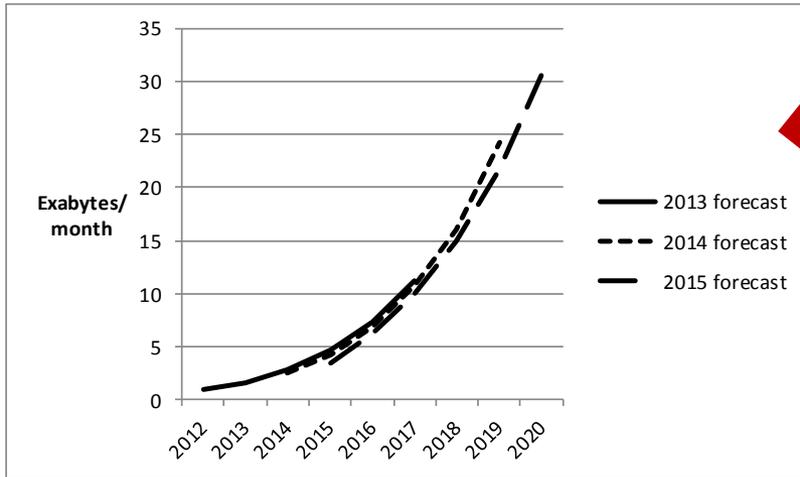
The 50 billion devices add 0.03% to network load

$y = -0.052x + 0.7935$

More of a problem is coverage

Broadband everywhere is better achieved with Wi-Fi and LTE

- Trains – Wi-Fi

- Buildings – Wi-Fi

- Rural and third world – 700/800MHz LTE (ideally with long-range mode)

- Integrating Wi-Fi well into 4G is critically important (eg Google Project Fi)

Regulatory and Governmental implications

- Spectrum for 4G, IoT and Wi-Fi, kept free of interference

- Relax competition rules to enable new players to aggregate Wi-Fi capacity, deliver IoT solutions, provide small-cell systems, and more

- Allow MNOs to adapt and merge

- Pay for uneconomic coverage