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Impact of Covid-19 on DCMS Sectors

About Us

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Introduction

1. The novel Coronavirus disease 2019 (Covid-19) has put unprecedented pressure on the NHS with the resultant lockdown disrupting socio-economic activities throughout the UK and indeed, across the world.
2. The disruption of daily life was minimized by transitioning to digital platforms. The telecommunication industry has been instrumental in ensuring that this transition is smooth and the sudden growth in demand is efficiently managed by the existing infrastructure. Digital services delivered via fixed broadband networks, as well as

mobile networks contributed not only in supporting continuity of economy, for instance through online shopping, education and other infotainment applications but also enabled implementation of new services, e.g. remote or online healthcare services. Some of the new services have been deployed to devise a coordinated action in response to the pandemic. Like other industries, Covid-19 has had significant and far reaching impacts on the telecommunication industry¹. In this submission, we present our written evidence on the impact of Covid-19 on DSMC sectors, with focus on telecommunications.

What has been the immediate impact of Covid-19 on the sector?

3. **5G deployment impact:** lockdowns and social distancing restrictions have disrupted the global 5G equipment supply chain, resulting in delays and limited options in the market. Moreover, 3rd Generation Partnership Project (3GPP) – the body tasked with standardising mobile telecommunications – has cancelled all face-to-face meetings for the year and delayed 5G Stage 3 standardisation by 3 months due to Covid-19², which might lead to delayed deployment of low-latency and massive machine-type communication services of 5G. On the regulatory side, Ofcom had initially planned to hold 5G spectrum auctions in the 700 MHz and 3.6 – 3.8 GHz frequency ranges in spring but had to postpone it to a yet to be confirmed date in 2020/21³. Moreover, Covid-19 response could have been accelerated through deployment of 4G/5G enabled applications/services. As an example, Internet-of-Things (IoT) based development boards and sensors could have been used for social distancing and remote condition monitoring over cellular or Wi-Fi networks. However, majority of these sensors and communication modules were widely unavailable from the major supplier. The disrupted supply chain and reliance on manufacturing sector in other countries was the key reason behind this. This ultimately hampered efforts from academic community to proposed new digital solutions.
4. **Network management impact:** commuter towns and large residential areas have experienced massive spikes in mobile data usage for communications apps of up to

¹ Ahmadi et al., “Wireless Communication and the Pandemic: The Story So Far”, April 2020 - <https://www.comsoc.org/publications/ctn/wireless-communication-and-pandemic-story-so-far>

² 3GPP, “3GPP work taken on-line”, May 2020 - <https://www.3gpp.org/news-events/2108-3gpp>

³ Ofcom, “Ofcom’s Plan of Work 2020/21”, April 2020 - https://www.ofcom.org.uk/_data/assets/pdf_file/0029/194753/statement-ofcom-plan-of-work-2020-21.pdf

120% due to both adults and children working from and staying at home throughout the lockdown, compared to city centres that saw up to 58% decrease in traffic⁴. Furthermore, fixed-line and mobile operators have reported up to 30% increase in network traffic during the lockdown⁵. To cope with this change in traffic profile, operators have invested in traffic and energy management, maintenance and upgrades of network infrastructure⁶. This would have been better managed if 5G penetration rates were better to utilise its self-organising capabilities, which leverages on virtualisation of network functions to flexibly provision and redirect resources where needed.

5. **Social impact:** unsubstantiated claims linking 5G with the spread of Covid-19 that have become viral thanks to social media have generated public antipathy towards 5G, resulting in telecom infrastructure being vandalised and workers harassed. This has led to about 90 attacks⁷ on cellular masts in the UK during the lockdown leaving some sites without coverage and further straining workers trying to keep the networks running efficiently. Fake news in general has led to several incidents with the considerable social impact. In the future, coordinated efforts will be required to tackle fake news and rumours that could compromise the effectiveness of critical infrastructure.
6. **Financial impact:** the lockdown and social distancing rules have led to network underutilisation, especially in urban commercial areas where current 5G deployments are mainly centred. This could lead to potential revenue losses for mobile network operators, with further leakages due to Wi-Fi co-existence in many homes. Whilst urban areas have seen a sharp drop in traffic, suburban areas have recorded significant rise in traffic with Vodafone seeing a 42% increase in mobile voice traffic on its network and EE reporting 45% increase in traffic from communication apps usage during the lockdown. It is worth noting that such a

⁴ "EE Network Trends Highlight the Changing Habits of the UK During Lockdown", May 2020 - <https://newsroom.ee.co.uk/ee-network-trends-highlight-the-changing-habits-of-the-uk-during-lockdown/>

⁵ "Virgin Media reveals extent of lockdown leap in broadband traffic growth", June 2020 - <https://www.virginmedia.com/corporate/media-centre/press-releases/virgin-media-reveals-extent-of-lockdown-leap-in-broadband-traffic-growth>

⁶ S. Petty, "How our networks will cope with more people staying at home", March 2020 - <https://newscentre.vodafone.co.uk/viewpoint/vodafone-networks-up-to-the-task-says-scott-petty/>

⁷ A. Martin, 'Coronavirus: 90 attacks on phone masts reported during UK's lockdown', May 2020 - <https://news.sky.com/story/coronavirus-90-attacks-on-phone-masts-reported-during-uks-lockdown-11994401>

significant increase in network utilisation does not signify profits. Operators have introduced generous packages that comprise of cheap data and free calls, which could have contributed to the rise in traffic⁸. Moreover, operators have deployed additional resources to ensure their networks run efficiently, which comes with corresponding OPEX implications. Financial results for this quarter will provide actual financial implications of Covid-19 on the industry.

7. **Network quality impact:** consumers in residential areas and outdoor places have faced intermittent access to broadband services due to the radical change in traffic patterns, which has caused congestion on fixed networks resulting in reduced quality of service and quality of experience. Besides, the unavailability of mobile broadband services (4G and 5G) has compounded matters for people living in rural areas, putting them in a disadvantaged position, compared to urban and suburban dwellers. Moreover, the Scottish 4G infill programme, which was launched to deliver 4G LTE infrastructure and services to approximately 50 - 60 locations in Scotland without 4G coverage, had to suspend all construction works from 23 March 2020 due to Covid-19⁹. Furthermore, Openreach has suspended future build plans for fibre-to-the-premises and scaled-back engineering works for network expansion due to Covid-19¹⁰, which has also contributed to poor mobile user experience during this pandemic.
8. **Cyber-security Impact:** several threat vectors have been identified, with more emerging, during the current crisis due to increased usage of telecommunication services. NHS digital infrastructure as well as online business activities have envisioned increased Covid-19 related cyber-security attacks¹¹. Moreover, the sudden migration to digital platforms for work, study and socialising offered less opportunity for consumers to evaluate privacy aspect of digital platforms, which could lead to leakage of personal data in the future.

⁸ "Mobile Operators and the Coronavirus (COVID-19)" - <https://www.mobileuk.org/mobile-operators-and-the-coronavirus>

⁹ "Scottish 4G infill programme: progress update", June 2020 - <https://www.gov.scot/publications/scottish-4g-infill-programme-progress-update/#How%20mast%20sites%20progress%20to%20delivery>

¹⁰ "Coronavirus: Openreach pauses future FTTP build plans" - <https://www.hso.co.uk/leased-lines/technology-news/fttp-news/coronavirus-openreach-pauses-future-fttp-build-plans>

¹¹ M. Knowles, "NHS struck by hackers increasing attacks during coronavirus - GCHQ in chilling warning", June 2020 - <https://www.express.co.uk/news/uk/1291668/nhs-hack-coronavirus-GCHQ>

How effectively has the support provided by DCMS, other Government departments and arms-length bodies addressed the sector's needs?

9. The UK Government has moved in swiftly to support telecoms by duly classifying it as a critical sector and declared persons that work in telecoms as key workers. This has allowed telecom workers to ensure that networks are up and running throughout the pandemic to support the NHS and socio-economic activities during this public health crisis.
10. Ofcom has prioritised Covid-19 related radiofrequency spectrum licence applications and cut down processing times to as short as one day to speed-up deployments by hospitals and other interventions requiring wireless connectivity¹². This involved coordinating and accelerating regulatory processes to ensure that the proposed transmitting stations do not cause interference to existing services.
11. The UKRI, Scottish Funding Council and other funding bodies have provided rapid response funding opportunities for solutions to curtail the Covid-19 pandemic. This has seen innovative ideas from academia and industry that utilise telecommunications for public health benefits being funded. However, these funding calls are for immediate impact projects, which leaves out other promising short-to-medium term ideas, given the possibility of Covid-19 being endemic.

What will the likely long-term impacts of Covid-19 be on the sector, and what support is needed to deal with those?

12. Mobile network operators will see a long-term change in network traffic patterns if working from home becomes normalised with a sizeable portion of the population moving out of big towns and cities to cheaper and quieter areas. Accordingly, operators would have to rethink their network deployment strategies that currently significantly favour dense urban areas.
13. 5G Fixed Wireless Access (FWA) has been shown to be capable of delivering high-speed fibre-grade broadband to homes in suburban and rural areas where there is inadequate fibre connectivity to support additional capacity demands. Accordingly,

¹² Ofcom, "Ofcom works fast to keep hospitals connected", May 2020 - <https://www.ofcom.org.uk/about-ofcom/latest/features-and-news/keep-hospitals-connected>

Government should incentivise accelerated 5G deployment beyond urban areas given the change in network traffic patterns.

14. Although Government's furlough scheme has ensured job security, albeit temporarily, the consensus is that economic forecasts look gloomy with fears of job losses. This means more consumers will not be able to afford highly priced 5G phone upgrades, resulting in underutilisation of existing 5G networks and revenue loss. Mobile device manufacturers and network operators need to reconsider pricing of 5G phones taking into account economic realities, otherwise the popularity 5G currently enjoys among the public might die-off. Manufacturers and operators need to rethink about the device and network compatibility and agree a transition phase deployment for 5G.

What lessons can be learnt from how DCMS, arms-length bodies and the sector have dealt with Covid-19?

15. Covid-19 has shown that telecommunication industry is, indeed, a critical sector that supports the NHS, emergency services, education, business, and keeping in touch with friends or family¹³. Government's decision to classify network equipment as critical infrastructure and telecom workers as essential workers has provided the required backing needed to ensure networks operate efficiently.
16. The need to fight conspiracy theories through public sensitisation has been amplified by Covid-19, which led to the destruction of critical network infrastructure and harassment of telecoms workers. Ofcom, academia and industry put out strong rebuttals of the conspiracy theories, detailing how attacks on telecoms infrastructure and workers could worsen the effects of Covid-19. Ofcom has also sanctioned media houses propagating these misleading claims¹⁴.
17. Covid-19 has clearly shown that there is need for a new approach to stakeholder engagement on the benefits of 5G pre- and post-deployment to aid in technology acceptance. A June 2020 Nokia-commissioned survey with respondents from the US,

¹³ Ahmadi et al., "Wireless Communication and the Pandemic: The Story So Far", April 2020 - <https://www.comsoc.org/publications/ctn/wireless-communication-and-pandemic-story-so-far>

¹⁴ Imran et al. "Busting the Myths About 5G – Facts Versus Fiction", May 2020 - <https://www.comsoc.org/publications/ctn/truth-out-there-examining-science-around-5g-paranoia>

the UK and South Korea found out that 80% of consumers that understand what 5G is find it appealing, compared to 23% of consumers that are unfamiliar with it¹⁵.

18. Covid-19 has emphasised the role of mobile communications in supporting multiple sectors of the economy and this makes a strong case for accelerated 5G deployment. Furthermore, researchers have rapidly developed innovative wireless communications solutions to tackle effects of the pandemic, which proves technological readiness.

How might the sector evolve after Covid-19, and how can DCMS support such innovation to deal with future challenges?

19. We expect increased 5G deployment in manufacturing, supply chain management, remote monitoring and remote control of robots to boost productivity and futureproof operations. This will be fuelled by Ofcom's latest spectrum licensing regime that promotes shared access licencing allowing for private and community-based mobile networks¹⁶.
20. We also envisage increased adoption of edge computation and content caching across networks, including in suburban and rural areas, which would ease network congestion, improve quality of service and support use cases such as education, immersive experience and IoT.
21. Networks will evolve towards Artificial Intelligence-enabled end-to-end solutions from network deployment to network management in order to minimise reliance on human intervention and improve efficiency. However, this should not be considered as a threat to current job roles in the telecommunication industry as there is need for trained a workforce for the new and emerging skills needed to run the intelligent networks.
22. DCMS should make available more funding for testbeds and trials of new 5G use cases and key enablers such as edge computing and automation to facilitate their adoption. These emerging use cases cover tourism, manufacturing, retail, agriculture, education, remote healthcare, among many others. It is necessary to

¹⁵ Nokia, "Nokia: new research highlights 5G Fixed Wireless Access opportunity for mobile operators", June 2020 - <https://www.nokia.com/about-us/news/releases/2020/06/10/nokia-new-research-highlights-5g-fixed-wireless-access-opportunity-for-mobile-operators/>

¹⁶ Ofcom, "Shared Access Licences", December 2019 - <https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/shared-access>

build resilient, reliable and robust mobile networks that can cope with changing demands and uncover new business opportunities.