



**TMT Middle East |
COVID-19 Response**
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The COVID-19 pandemic and the consequent societal changes have had a profound effect on all industry sectors with telecom operators (telcos) not immune to this impact. As populations were restricted to their homes and encouraged to conduct their professional, educational and leisure activities online, the outcome has been a surge in the data volumes being demanded from telcos.

Consequently, a number of telcos around the world have seen instances of network quality degradation such as increases in call drop rates and lower audio quality as a result of the unexpected growth in demand. Managing the new levels of demand that are likely to endure even beyond the social distancing restrictions and the strain this is causing on available capacity have necessitated immediate action in order to preserve what is increasingly seen as a critical service.

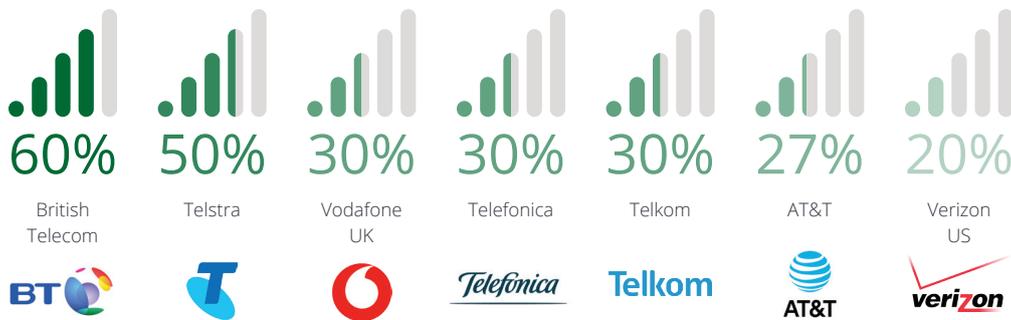
In the wake of this pandemic, telcos have and continue to review their network resilience strategies and assess what this means for their existing 5G rollout plans.



With social distancing restrictions and lockdowns mandated by local governments around the world, COVID-19 has imposed a new reality on how societies and economies function together. This has led to people across the world finding new ways to deliver work, socialize, keep entertained and educated from

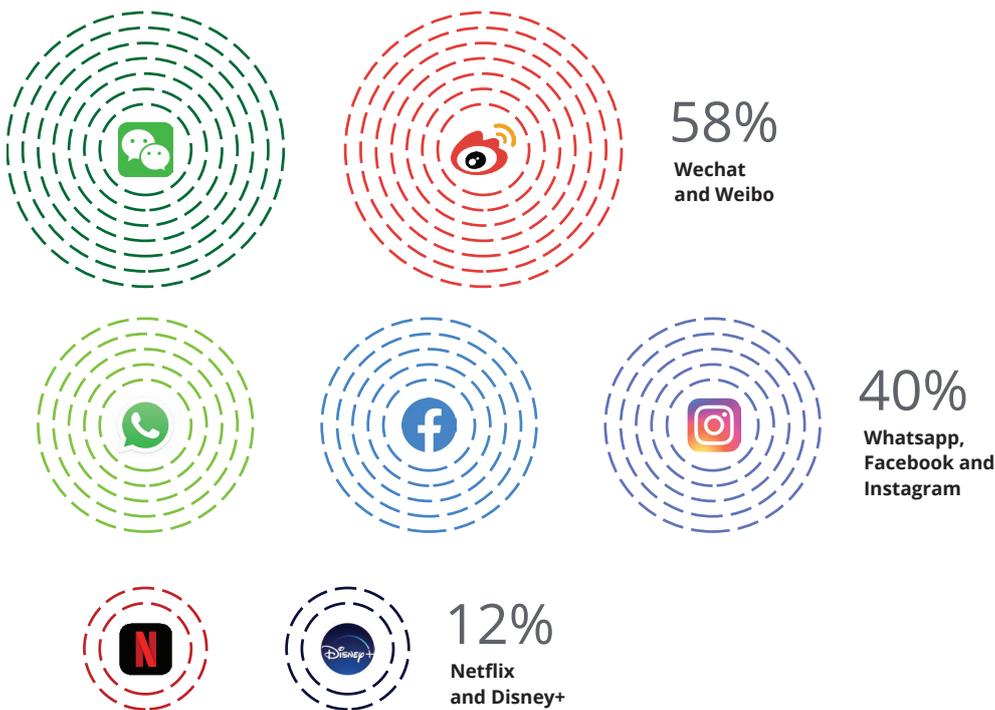
their homes. The internet is now, more than ever, a key tool in bringing people together in this new paradigm. For telcos and Over-The-Top (OTT) players, this increased appetite for data consumption has translated into large increases in traffic volumes.

Figure 1: Additional data traffic observed by telcos in February and March 2020¹



Operators have witnessed unplanned surges in demand caused by changes to societal and economic realities post COVID-19

Figure 2: Increase of traffic volumes across OTT players Feb & Mar 2020²



The increased usage of OTT applications and social networks have resulted in significant growth in traffic.

Approaches to managing the traffic

The COVID-19 induced traffic surge has been a catalyst for telcos to review their business continuity plans with particular emphasis on network resiliency. On the whole, operators appear to be coping with the unprecedented demand for traffic with a few distinct patterns emerging. The mix of responses in dealing with the traffic surge includes instances of telcos collaborating with competitors, customers being asked to adapt behavior or increase their tolerance to outages and reductions to standard bandwidth.

A number of countries have also made spectrum resources (radio frequency bands) available to telcos to cope with the additional demand. Several operators have also observed the peak in daytime volumes remaining below the usual traffic for which the network was sized for - in many cases mobile data traffic actually decreased as data consumption at home switched to WiFi. However, some degradation was evidenced across voice networks in the form of increased call drop rates and lower audio quality.

- 25% reduction in bandwidth by Netflix, Amazon Prime
- Disney are to address VOD impact. YouTube has made SD its default quality.
- Apple TV Plus reduced streaming quality.
- Facebook reduced bit rate for Instagram video and Facebook in Europe [11,12].



Saudi Arabia, US, Jordan, Tunisia, Ireland and South Africa are amongst countries who have made spectrum resources available to telcos in an effort of supporting coverage and capacity challenges [7].

Spanish broadband providers have asked their customers to ration their usage by downloading large files during non-peak periods [3].

DTAC in Thailand are optimizing their network capacity following traffic surges establishing network contingency plans focused on expanding Massive MIMO technology to triple network capacity [9].

Brazilian operators are jointly working with government and regulators to guarantee communications services and business continuity [8].

Bharti Airtel have asked **Vodafone Idea, Jio, BSNL and MTNL** to join forces in India to ensure uninterrupted mobile and wireless internet services [6].

du in the UAE has doubled bandwidth for distance learning initiatives at no additional cost, utilizing available bandwidth [10].

Mobile Telephone Network (MTN) in South Africa has announced increase in infrastructure to accommodate the high volumes of network traffic as more South Africans work from home [5].

Saudi Telecom Company (STC) has reported a 1,000% increase in remote education bandwidth and have secured additional network infrastructure [4].



Differing approaches to 5G deployment

COVID-19 has undoubtedly impacted many telcos' existing 5G plans. Prior to the pandemic, significant investment was planned for this year with over 70 operators intending to launch 5G globally. In the wake of this pandemic, telecom operators appear to be taking one of two differing approaches; accelerating or decelerating investments in 5G. A number of operators see 5G as a key enabler to fuel the economy post COVID-19 or even help in the fight against the virus. Other operators are reducing overall capex due to lower profits and/or are restricting network rollout plans of 5G due to health concerns related to engineer safety. Here are examples of the differing approaches countries and operators have taken.

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Deceleration of 5G rollout

Delays in 5G roll outs by operators/vendors

- A telecom operator in Belgium announced lower capex
- A broadband provider in New Zealand has also announced lower capex investment
- A broadband and mobile internet provider in Germany announced a delay to 5G network build due to issues in securing permission to access sites

5G Auction delays by certain countries

- Austria - postponed its 5G auction, originally scheduled to take place in April
- Spain has postponed a planned 5G spectrum auction.
- Portugal has delayed the auction for several bands including 700MHz, 900MHz, & 1800MHz
- France has also announced a delay in the 5G auction and specifically across 3.4 GHz and 3.8 GHz

Acceleration 5G deployment

China

- One of the large telco operators in China is in its 2nd phase of 5G rollout and has awarded \$5.2 billion in contracts in March 2020.
- Several Chinese telco operators are expected to invest in the order of \$28 billion in 5G in 2020.

United States of America

- One of the largest US telco operators announced an increase of spending of which a major component is 5G
- Auction of mmWave spectrum in the United States completed in March 2020 raising over USD \$7b

Australia

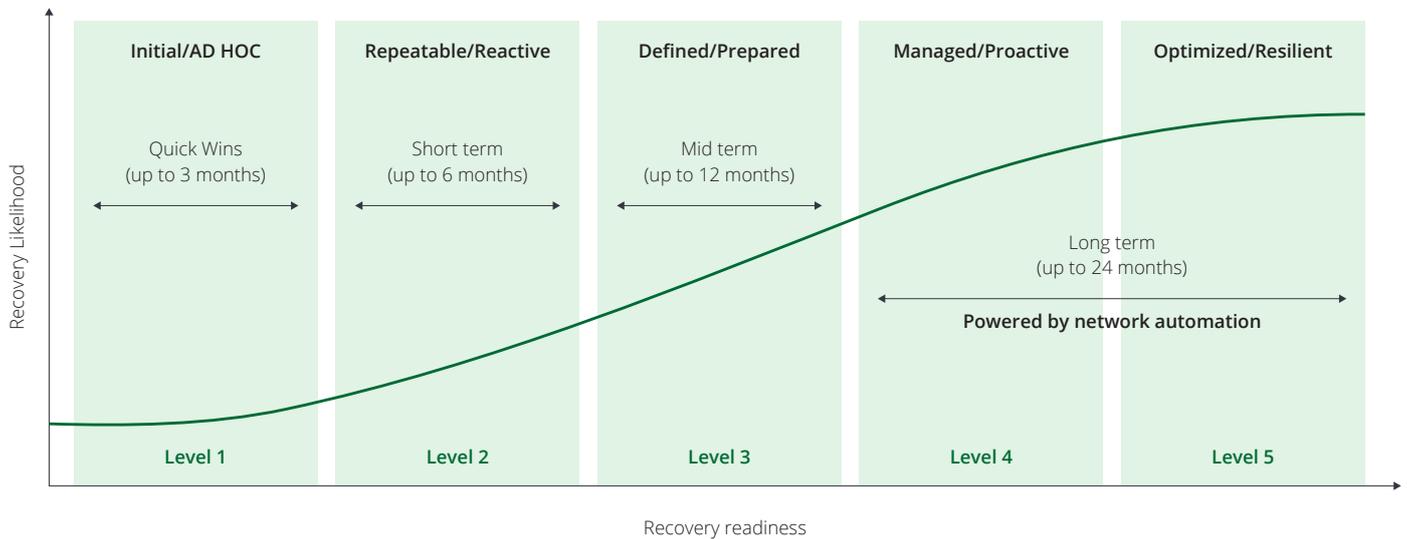
- One of Australia's largest operators have brought forward 2021 investment into this year to accelerate 5G rollout

Building network resilience

The COVID-19 pandemic has highlighted the need for telecom operators to focus on the level of resilience of their networks. It has also demonstrated that telecom operators have differing levels of maturity across their network infrastructure. Independently of the decisions pertaining to 5G rollout, as operators think through their strategies and adapt their response to COVID-19, it is important that they consider the wider implications of the pandemic and a world beyond COVID-19. When reviewing network resilience it is important to evaluate through the lens of differing phases of maturity regardless of decisions around deceleration or acceleration of 5G.

Measuring the current resilience maturity is important and allows an operator to take informed decisions such as key investments in driving forward their strategic programs. Improving the resilience of existing networks has shown itself to be a mandatory program across operators globally. In a 5G ecosystem, resilience and security are critical factors and the below Resilience Maturity Framework can provide a solution to telcos in finding the appropriate balance between investment in the future and delivering on the immediate requirements.

When reviewing network resilience it is important to evaluate through the lens of differing phases of maturity regardless of decisions around deceleration or acceleration of 5G.



Description of Resiliency Maturity levels



Level 1: At the first maturity level, ad hoc initiatives are required to deal with the unexpected traffic surge. It is important to have partners (e.g. Deloitte, vendors, Google) to become a proxy to share real-time data of potential network impact due to COVID-19. Analytics must be leveraged to enable data driven decisions based on predictions developing actions related to capacity management to accommodate the traffic surge where needed. Its also worth noting that NOCs require continuity plans to work remotely and accommodate higher volumes of trouble tickets and performance issues.



Level 2: At the second maturity level, telcos deploy initiatives to deal with the known impact of any traffic surge scenario. Customer care teams may require additional FTEs to manage the expected higher volume of bandwidth upgrades (enterprise and consumer segments). Strengthening network resiliency and optimizing disaster recovery plans help to avoid outages or network performance degradation. Telcos can conduct a gap analysis against leading practices to identify and prioritize actions to mitigate/ eliminate the traffic surge impact on service KPIs and SLAs.



Level 3: At the third level of maturity, operators launch structured initiatives such as prioritizing connectivity and ensuring that emergency services are equipped with resilient “off-grid” communications - e.g. satellite communication devices. Mission critical communications should be prioritized (Access Class barring, pre-emption control or data prioritization) and similar exercises should be conducted for the consumer segment (e.g. block VOD traffic such as Netflix and YouTube) conditioned to a regulatory assessment around net neutrality rules. In addition dynamic price charging should be a explored to drive customer behavior (e.g. busiest hour would cost a different price)



Level 4: At the fourth and fifth maturity levels, automation plays a key role on both the agility to respond and the scalability to deal with the high volume of network interventions. Operators should deploy mature use cases of AI/ML to anticipate, based on behavioral patterns, incidents and problems on their networks. A closed loop orchestration process will guarantee service assurance. Intelligent root cause analysis has a key role in creating a self healing network capability. Additionally, Security (SOAR) will play a critical role to avoid DDoS attacks that can exacerbate the congestion.

Key questions telcos should be addressing:

- Do we have the right approach for our 5G roadmap in a post COVID-19 world?
- How will network automation help beyond today’s immediate network traffic surge?
- What are the lessons learnt from the current crisis and how should we adapt to be more resilient in similar events and disruptions in the future?
- How can a resilient network approach continue to meet higher bandwidth demands while managing costs?
- Which initiatives are critical to increase business resilience in the short and long terms?

Automation plays a key role on both the agility to respond and the scalability to deal with the high volume of network interventions.

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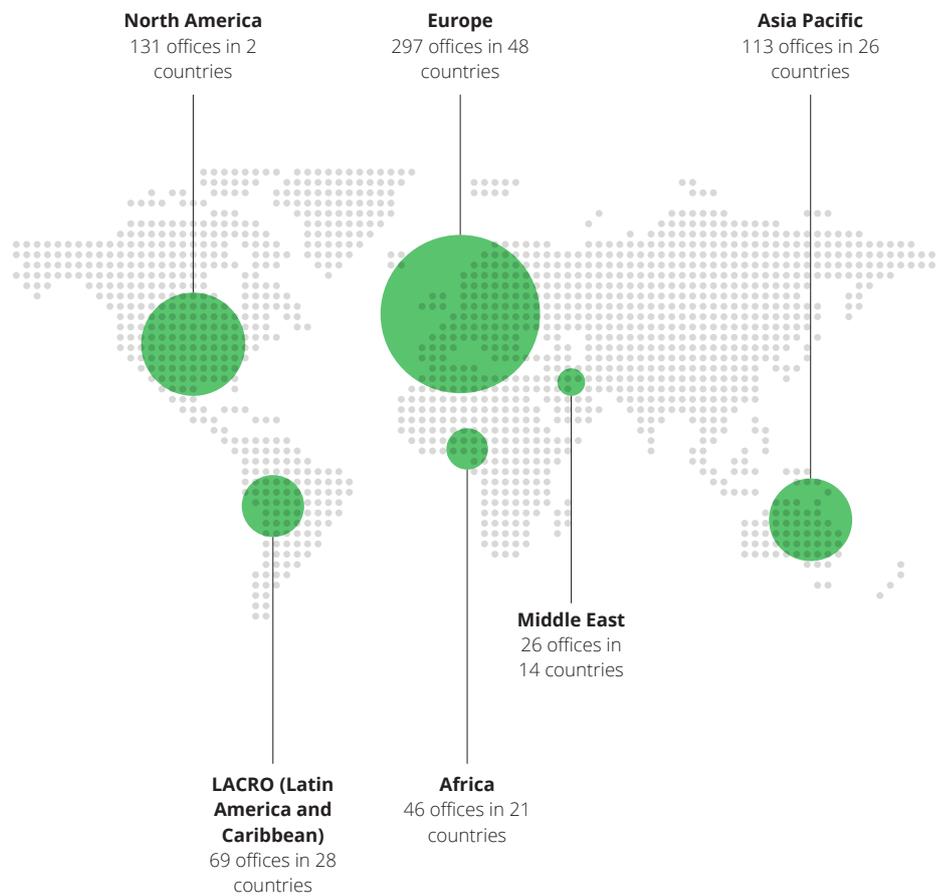
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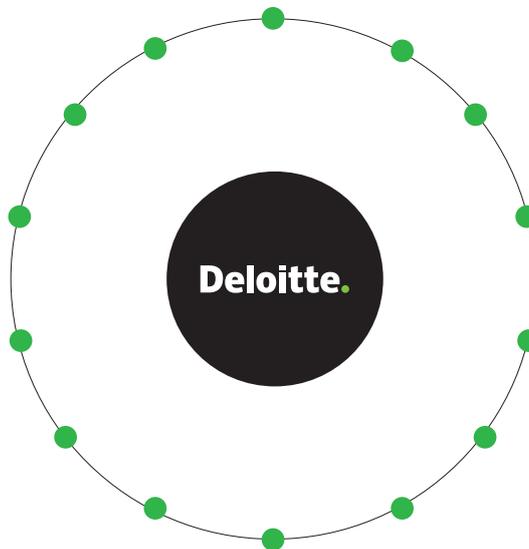


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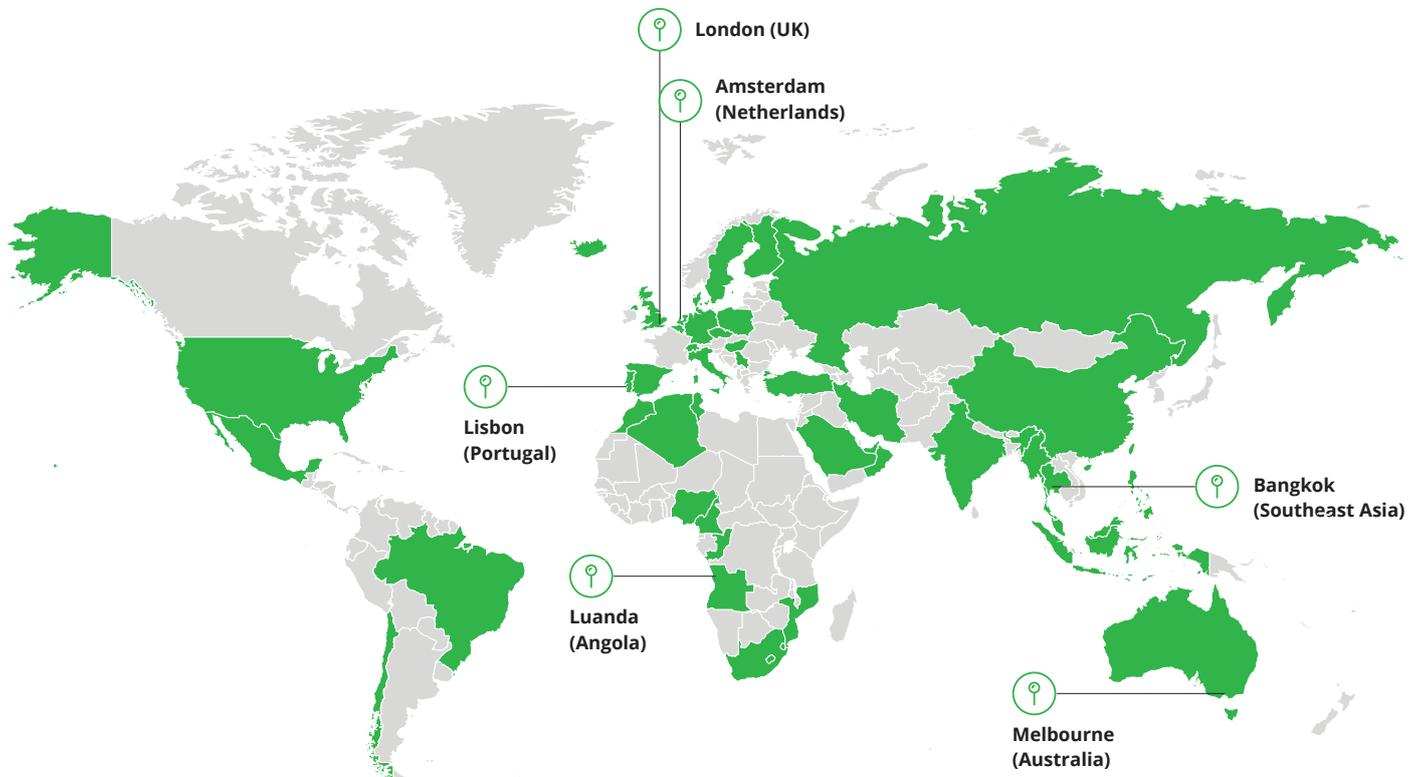
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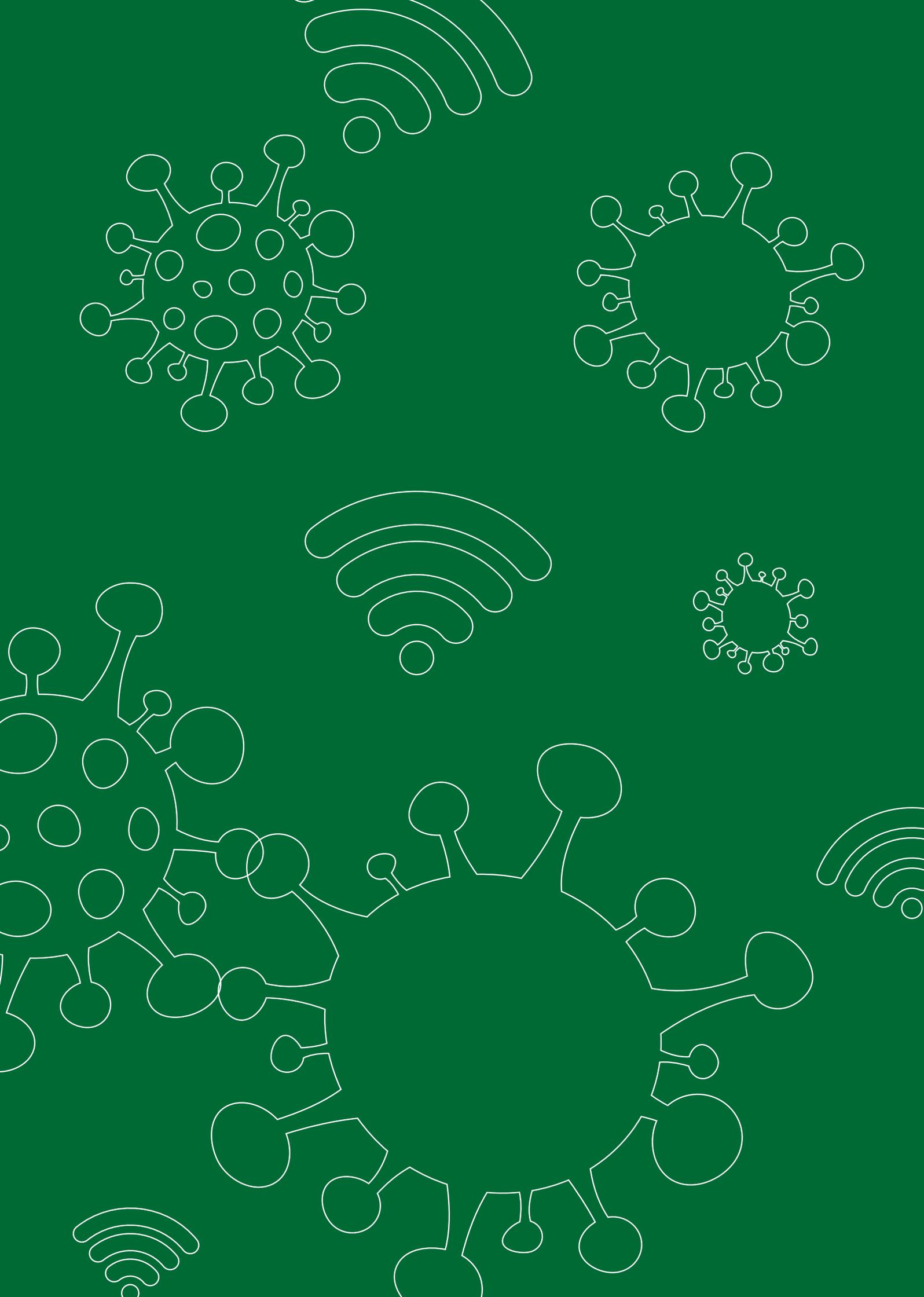
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