



TELECOMMUNICATIONS

Serving society

The Telecommunications division plays an important role in connecting over 100 million people across 12 markets to their personal and business networks. In this fast-paced digital world, connectivity plays a fundamental role in enabling and empowering human progress and the COVID-19 pandemic has highlighted just how important this access is for the sustainable functioning of society.

Having the necessary skills and access to connectivity to benefit from digitalisation also presents a sustainability challenge: to ensure all benefit from this technological shift and that no one is left behind.






Further, transitioning to a low carbon economy and reaching net zero will require the use of technology that will facilitate the rapid reduction in emissions to reach this goal. Avoided emissions enabled by mobile communications technology will be significant to this aim.








The division's role in serving society is clear –

To enable a sustainable, inclusive and digitally-enabled society.

Material topics, goals and progress

The following table highlights the material topics identified for the Telecommunications division, as well as the relevant UN Sustainable Development Goals ("SDG"), division goals and progress made.

Material topics & SDGs	Goals	Highlights
Creating a digital future   	<ul style="list-style-type: none"> • Deliver better connectivity, every day, for every customer. • Be ready to help customers on their low carbon transitions. • Support young people in building the digital skills needed for the jobs of tomorrow. • Support digital inclusion in rural areas. • Support society, particularly the vulnerable, through the pandemic with free connectivity and access. 	<ul style="list-style-type: none"> • 3 UK boasts the UK's largest 5G spectrum holdings with average speeds in excess of 200Mbps. • Developing smart solutions to accelerate emissions reductions in other sectors e.g. utilities, ports, airports, and electric vehicle infrastructure. • Piloting Low Power Wide Area network infrastructure as a first step in a UK rollout to support mass deployment of IoT devices. • Building digital skillsets through partnering with universities to deliver training on cyber security and to hold a hackathon for students to explore the challenges and opportunities relating to smart cities and smart living. • Working with the UK Government on the Shared Rural Network to bring guaranteed coverage to 280,000 premises and 16,000km of roads in rural areas. • Worked with the Arranmore Business Council in Ireland, to provide connectivity to the island of Arranmore, supporting societal and economic development. • Zero-rated access to healthcare websites and donated devices and connectivity to charities to support some of the most vulnerable, among other initiatives during the pandemic.
Taking action on climate change  	<ul style="list-style-type: none"> • Collaborate across the division to set one science-based target to be validated by the Science Based Target Initiative. • Develop a carbon footprint including scope 1, 2 and 3 emissions along with the help of carbon experts. • Conduct a gap analysis against the recommendations set out in the TCFD framework. 	<ul style="list-style-type: none"> • Began a project in 2020 with a third party expert to set a science-based target, develop a carbon footprint to identify hotspots and conduct a gap analysis against the recommendations set out in the TCFD recommendations. Results of this project will be released by end 2021. • Reported to the CDP for the first time in 2020 and received a score of B-. • High impact projects implemented in the areas of: <ul style="list-style-type: none"> - Procuring and installing efficient network equipment; - Decommissioning and replacing legacy equipment; - Installing energy saving controls and features; and - Reducing energy demand by installing lower-energy power and cooling technologies.

Material topics & SDGs	Goals	Highlights
Delivering responsible products and services   	<ul style="list-style-type: none"> • Ensure best-in-class systems for data privacy and cyber security. • Provide parents and guardians with tools and systems to protect their children from online harm. • Design and develop products and services that deliver positive social and environmental impact. 	<ul style="list-style-type: none"> • Ongoing control systems in place to strengthen governance, risk management and compliance to minimise the risk of a data privacy breach. • Work closely with leading industry bodies to counteract and mitigate the latest security threats, and support secure technologies in the future. • Launched guides for parents and guardians to navigate the online world safely together with their children. • Ongoing programmes to reduce packaging size, increase recyclability and use lower impact materials. • Offering take-back and recycling programmes to the public (customers and non-customers) for their devices and accessories. • Developed a conscious consumption category to address customers with strong sustainability values.
Creating a great place to work   	<ul style="list-style-type: none"> • Be an employer of choice, with employees that feel heard, engaged and supported. • Be a diverse business where employees feel they are included and belong; ensure conscious leadership; work in partnership with internal and external networks. 	<ul style="list-style-type: none"> • Conduct annual engagement surveys with top management oversight of results. • Creating future-fit skills with learning and development programmes in digitalisation across markets. • Partnered with the National Centre for Diversity to hold workshops for people leaders in addition to providing guidance and expertise in the UK. • Developed a wide range of employee networks to support inclusion and diversity.
	SDG 17, "Partnerships for the goals", underpins action on all material topics and enables the best possible impacts through collaboration and working with relevant partners.	

Creating a digital future

A report ⁽¹⁾ [produced by Deloitte and GeSI](#) found that digital technologies could have a transformational impact on the world's ability to meet the 2030 Agenda and the UN Sustainable Development Goals ("SDGs"), specifically finding that of the 169 SDG targets, 103 are directly influenced by digital technologies. According to the Social Progress Imperative report ⁽²⁾ [the world is on track to miss the 2030 due date in order to achieve the SDGs by over 60 years at the current rate of progress](#), mobile network-enabled transformation to accelerate positive change has never been more important.

The deployment of 5G connectivity that provides speed and capacity at fundamentally different levels will be increasingly central to progress against the SDGs. Digitalisation is expected to disrupt all parts of the economy over the next decade and, if sufficient policy and investment is received, has the potential to be a key driver of the low carbon transition, among other priorities central to sustainable development.

Note 1: "Digital with Purpose: Delivering a SMARTer2030", available at www.gesi.org

Note 2: "Announcing the 2020 Social Progress Index", available at www.socialprogress.blog



Contributing to the knowledge base of the 5G opportunity in supporting the SDGs

WINDTRE produced, along with a panel of external subject matter experts, two research reports looking at the benefits of digitalisation in supporting the SDGs.

The first, "Digital Innovation for the SDGs", was developed with 40 external experts from across the public and private sector to explore the role of digitalisation in four key areas including: i) education, ii) social inclusion, iii) digital responsibility, and iv) environment and quality of life.

The follow-up to this report, "5G Cities, Sustainable Cities", focused on 5G's role in creating sustainable cities embodied in SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable. The report focuses on the future of cities, with the aim of reflecting on how a smart transition would affect a city's sustainable development,

competitiveness and quality of life. The division also used the learning process to investigate its role in 5G implementation and the benefits to SDG 11.

Both reports were launched at the 2018 and 2019 Italian Sustainable Development Festival respectively, the largest sustainability event in Italy, and are available [here](#).

In 2020, WINDTRE also took part in Milan Digital Week, by supporting the event "5G Road-Smart City, Smart Life" including four live streamed events dedicated to exploring the opportunities of 5G in transforming many aspects of daily life. Alongside technology experts, scientists, journalists, and entrepreneurs, WINDTRE management discussed the 5G opportunities in the areas of work, education, culture, sport, inclusion and research.

Network resiliency and coverage

The Telecommunications division's goal is to deliver better connectivity, every day, for every customer. Network resiliency serves as a fundamental social responsibility – to ensure that customers are able to connect, communicate, access data and share information anytime, anywhere.

Resiliency to extreme weather events

5G networks will be required to adapt during extreme weather events, and increasingly so in the face of climate change. Resiliency is enabled by efficient radio equipment that in the future can be powered by micro grids and renewable energy. The resiliency of cell site towers against damage caused by extreme weather events has been a priority focus area for the division's crisis management teams, in addition to rolling out innovative technology solutions such as "network in a box" that can deploy a complete network rapidly enabled by technology features such as self-backhauling,

and potentially satellite backhauling. In this regard, the division continues to use a range of network technologies optimised for local weather systems, from metropolitan and rural Asia, to the northern European extremes of Sweden.



5G brings greater connectivity

Delivering more and fastest 5G

3 UK has the largest 5G spectrum holding in the UK market. It is also the UK's fastest 5G network ⁽³⁾ boasting speeds in excess of 200Mbps, along with 5G availability in 154 towns and cities throughout the UK and serviced by more than 900 sites for mobile and home broadband. 3 UK ended the year with 1,000 sites and expects hundreds more sites to come online before the end of 2021.

In July 2020, 3 UK became one of over 100 service providers worldwide to establish a 5G commercial agreement with Ericsson to roll out its 5G network. This is part of a £2 billion investment in the transformation of the UK network and IT infrastructure, and also includes huge improvements to the 4G network. This partnership will help boost network efficiency and enable a cost-effective and rapid extension of 5G across the UK.

Note 3: As per data from mobile speed test firm Ookla as at end 2020.





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Enabling the low carbon transition

Transitioning to a low carbon economy and reaching net zero by 2050 will require the use of technology that can facilitate the rapid reduction in emissions required to meet this goal. Mobile network enabled technologies have a key role to play in this transition through increasing connectivity, improving efficiency and impacting behaviour change. While emissions from the mobile sector account for approximately 0.4% ⁽⁴⁾ of global emissions, the level of avoided emissions enabled by mobile communications technologies is 10 times greater. To illustrate, in 2018, the enabling impact of mobile communication technologies globally was estimated to be 2,135 million ⁽⁵⁾ tonnes CO₂e, or roughly the equivalent to the GHG emissions emitted by Russia in 2017. By 2025, it is estimated that increases in smartphone usage and IoT connections could result in a further doubling ⁽⁶⁾ of the avoided emissions enabled by mobile technologies.

The sector's ongoing development of 5G connected technologies, is releasing a wave of low carbon innovation across many other sectors of industry and society and the division is positioning its capabilities and offerings to be a part of that technological revolution.

Utilities

Energy management based on IoT devices provides many benefits for every part of the electricity supply chain network, from power generation to the end-point consumers. The monitoring of end-users' assets, be it heavy machinery on a plant or a household device, allows an enhanced understanding of energy consumption, enabling better forecasting and reduced energy wastage. On the supplier's side, sensor-enabled assets help optimise asset maintenance, integrate renewable energy and avoid waste by predicting energy peaks.

The division partners with utilities companies to provide SIM cards for utility meters in residential and commercial properties in order to remotely view and control, in real-time, a property's energy consumption. For example, the division currently has four million SIM cards in utility meters across Ireland and Italy helping customers to actively monitor their consumption of electricity, gas and water.

The division has also collaborated with energy specialists to offer energy management solutions to customers to take control of their energy usage and identify opportunities for reduced consumption. One such collaboration is with ista, one of the Group's Infrastructure companies which is dedicated to offering data-based energy management products and services. By providing the SIM authentication infrastructure, the division is partnering with ista to offer a full suite of solutions for smart energy management.

A similar partnership has been created with an energy management specialist, Ouvert, to develop the WINDTRE Energy Supervisor which provides companies and public administrations with the tools and methodologies for advanced energy tracking to support the identification of energy efficiencies.

Ports

Large-scale IoT connectivity can be used to optimise ports operations at all levels. Sensors and monitoring equipment on board ships can gather vessel performance data to find the optimal route and engine configuration that reduces fuel consumption and carbon emissions. IoT can enable real-time monitoring of port equipment and machinery, as well as issue detection and failure prevention.

Using a 5G Private Network installed by 3 UK, Hutchison Ports Port of Felixstowe, the UK's largest port, will deploy 5G and IoT to support remote-controlled crane operations and predictive maintenance. Predictive maintenance decreases unplanned downtimes and vessel delays that significantly reduce fuel wastage and carbon emissions.

Working with 3 UK, Cambridge University, Blue Mesh Solutions, Ericsson and Siemens, the port will install a 5G-enabled sensor and CCTV network across its crane fleet under the UK Government's 5G Testbeds and Trials Programme to drive investment and innovation in 5G.

3 UK is also working with Hutchison Ports Stockholm to review the use of 5G in developing automated transfer carriers.

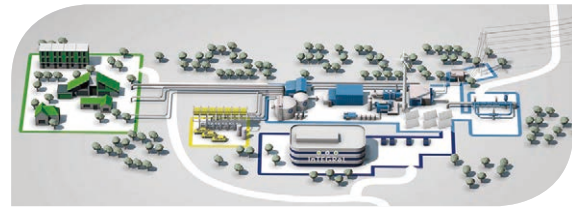
Note 4, 5 & 6: "The Enablement Effect", available at www.gsma.com

Strengthening IoT with Low Power Wide Area capability

The Integrated Transport Electricity and Gas Research Laboratory (InTEGREL) is a fully integrated whole energy systems development and demonstration facility led by Northern Gas Networks, a company within the Group's Infrastructure division. The lab is focused on helping the UK Government meet its 2050 target of net zero carbon emissions.

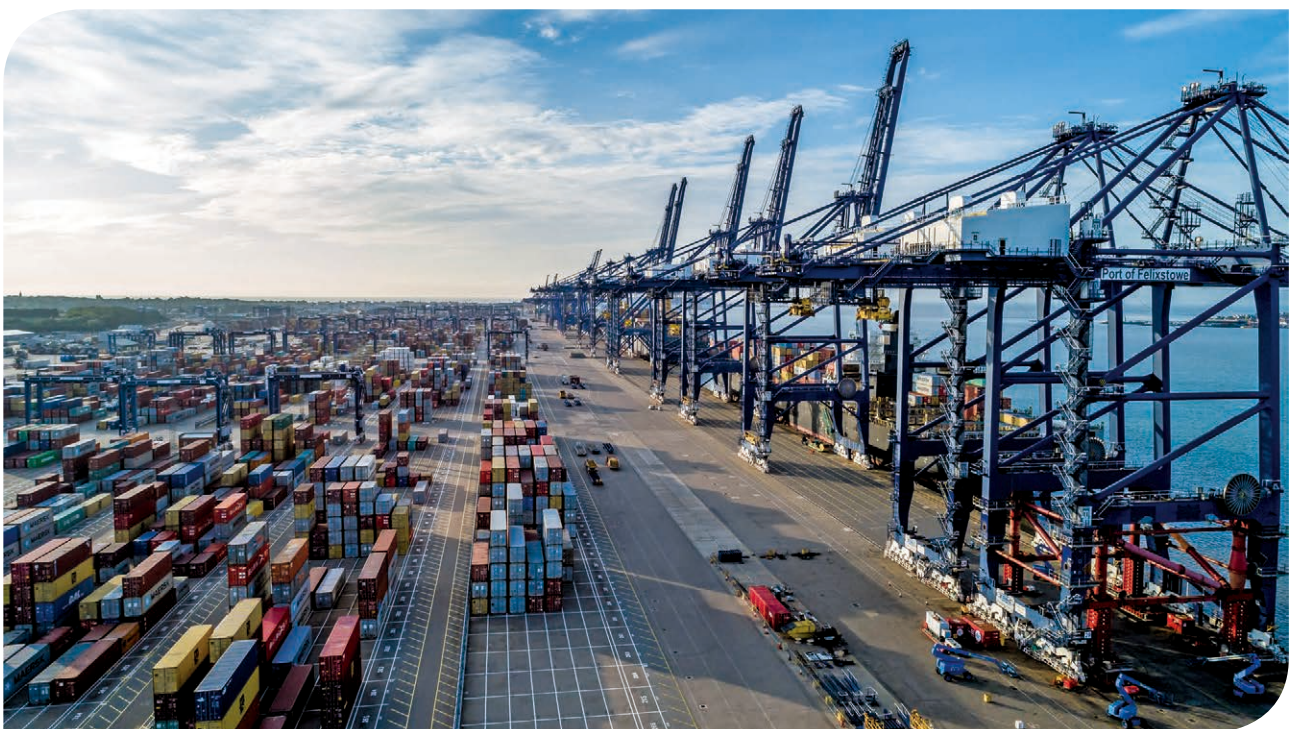
The Telecommunications division, led by the CKH Innovations Opportunities Development unit, is piloting a Low Power Wide Area network ("LPWA") at InTEGREL which is the first step in a nationwide network rollout that will support mass deployment of IoT devices. LPWA networks, made up of Narrowband IoT and LTE-M technologies, provide a

cost-effective way to wirelessly connect IoT devices which monitor and control everything from key infrastructure to smart buttons. Sectors such as energy, logistics, building management, and transport have the potential to be digitally transformed by Low Power Wide Area technologies, unleashing an incredible opportunity for emissions reduction among other benefits.



“ LPWA offers huge potential for the gas industry. Real-time data from our infrastructure flowing into advanced data analytics models will allow us to take fast, agile and even pre-emptive action to deliver outstanding customer value whilst maintaining the highest level of resilience, which will be more important than ever as we transition to a low carbon energy network. Our industry needs new technologies such as this to support our ambitions to decarbonise gas systems, through projects such as H21 to transition to hydrogen for heat and meet the UK Net Zero target by 2050. ”

Matthew Little, Innovation, Information and Improvement Director, Northern Gas Networks



Airports

Airports, with their complex operating environment enabled by a vast number of physical assets, are ideally placed to benefit from IoT to reduce their carbon emissions. Large-scale IoT deployment can address inefficiency issues that might be created through poor engine maintenance, for example, that can lead to significant fuel wastage. IoT can instead gather engine status in real time enabling active maintenance. As a technology partner to Heathrow Airport in the UK, the division runs the airport's airside networks, providing secure and reliable communication with the ability to connect an immense number of devices.



Heathrow Airport, UK

Electric vehicle infrastructure

With the UK Government, among others globally, committing to banning the sale of internal combustion engines by 2030, the need for a rapid rollout of electric vehicle infrastructure is crucial. CKDelta, the division's data innovation business, has built expertise in understanding how all the elements of the electric vehicle ecosystem interact and is positioned to help the various actors involved in such a complex rollout including power distributors, charge point operators, urban planners, and payment solutions providers.



Electric vehicle recharging

Digital inclusion

Once considered a luxury, being digitally connected is now a way of life. Digital technologies enable the world to connect with

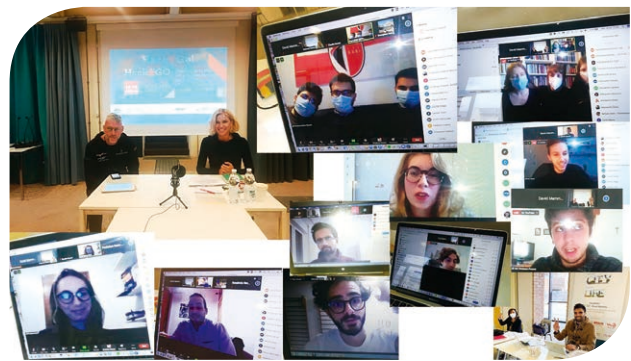
friends and family, use online services and take advantage of a wider range of opportunities. Many services are now exclusively offered only through the internet and therefore not having the skills or access can become major life hurdles. Increased working and learning from home as a result of the COVID-19 pandemic has further widened the gap for those who lack the digital know-how or access to connectivity.

Building the digital skills of tomorrow

With the onset of rapid digitalisation, it's essential to have the skills needed in order to flourish in a digital world. The division is partnering with organisations to help build these skillsets, particularly within the younger generation as they prepare for future careers.

In 2020, the following initiatives took place:

- Collaborated with Politecnico di Milano in Italy to deliver the Cyber Security and Data Scientist Academy programmes to engineering students to share insights on how privacy and cyber security will be relevant to the current and future workplace.
- Partnered with MIND, the Triulza Foundation and Robert Bosch Foundation, on the event, "Hack & Go!", the hackathon for university students to explore and tackle challenges and opportunities relating to 5G, IoT and Mobility Services for smart cities and smart living. The winning team was rewarded with a six-month internship at WINDTRE.
- Supported Digital Compass, an organisation in Vienna, Austria which provides workshops on digital literacy to school classes from the seventh grade.



Hack & Go!

Digital inclusion in rural areas

While living in a remote location can be idyllic, a major drawback may be a lack of coverage. Without it, running a business, staying connected, and getting around can be all the harder.

3 UK is working with the UK Government and several other mobile operators on a £1 billion project called the Shared Rural Network to bring guaranteed coverage to 280,000 premises and 16,000km

of roads in rural areas across the UK. Once completed, 95% of the UK will have reliable 4G coverage. From 2021, **3** UK will be working on building and sharing over 220 new mobile masts nationwide by 2024, significantly boosting rural coverage.



Boosting rural network coverage

In 2019, **3** Ireland launched a partnership with the Arranmore Business Council on the island of Arranmore, five kilometres off the coast of Donegal, Ireland to create a more connected island and enable societal and economic development. Prior to this, the lack of connectivity has restricted the population's ability to establish and grow a business, as well as maintain the population



Experience how connectivity has benefited the Island of Arranmore.

to sustain their unique culture and way of life. **3** Ireland helped equip the island's Digital Hub with superfast connectivity and bandwidth to facilitate effective remote working and state-of-the-art conferencing facilities.

3's broadband solution, has been installed in a number of local business and community facilities around the island, including in Scoil Athphoirt where students can now use interactive whiteboards, research online and participate in online learning. The broadband solution has also been installed in the medical centre which will facilitate telemedical applications including video consultations with consultants on the mainland, saving patients a four-hour round trip to the nearest city. **3** Ireland has also implemented a range of IoT solutions to support elderly care and environmental monitoring.

In Indonesia where the world's fourth most populous country is spread over 17,000 islands, **3** Indonesia has been expanding into the rural areas to connect the hard to reach places. **3** Indonesia's 4.5G pro network now covers nearly 35,000 villages in over 325 cities and 3,700 districts across Indonesia.

Supporting society through the pandemic

The COVID-19 pandemic has fundamentally changed the way society interacts as measures globally have been put in place to reduce physical contact to slow the spread of the virus. The telecommunications industry has therefore needed to play a vital role in keeping people connected as they are confined to work, study and be entertained from home.

Island of Arranmore



Across the Group, customers were offered free data access and calls to healthcare support websites and hotlines. For example, **3** UK zero-rated access to the NHS website, the COVID hotline, victim support and domestic abuse services, and Hospedia, the communication network enabling hospital patients to contact home. WINDTRE also enabled free access to Senior Italia FederAnziani, a popular support hotline for senior customers, and **3** Ireland donated 3Connect services for smoother remote working to Aware, the mental health support service which has seen a sharp increase in the number of callers as a result of the pandemic.



Hotline for senior citizens

In the early days of the pandemic when customers found themselves stranded abroad in the face of lockdowns, **3** Sweden and **3** Denmark offered all customers free data, calls and texts to their home country to stay connected. **3** Denmark further doubled the amount of data for voice subscriptions from May – November 2020 to assist customers needing to spend more time online from home.

The Hong Kong and Macau business also collaborated with Microsoft to provide corporate customers with free subscriptions of Microsoft Office 365 to assist the local business community with remote working and Hutch Lanka in Sri Lanka offered free daily reloads for its subscribers to help them stay connected.

The division's community support initiatives in 2020 prioritised supporting healthcare services and the needs of the vulnerable. WINDTRE donated one million euros to local hospitals and **3** UK supported frontline hospital workers by providing them with unlimited calls, texts and data. **3** Indonesia also provided 20,000 SIM cards and free internet access to patients, health workers and volunteers at hospitals around the country to help them stay connected to loved ones at home during the pandemic.

Understanding the difficulties felt by local businesses and school children needing to make the switch to online learning, **3** Austria donated internet packages to small and medium enterprises, and Zoom classroom accounts were donated to local schools in Hong



Free internet donations to schools

Kong. Similarly, tablets, internet access and school materials were donated by WINDTRE to underprivileged families and hospitalised COVID-19 patients in Italy, and **3** Ireland donated 15,000 SIMs with unlimited data to 160 schools around Ireland. **3** UK further zero-rated the Oak National Academy, a UK Government-based online educational resource that has helped thousands of school children across the UK receive free video lessons and resources. **3** Indonesia donated starter packs with unlimited data to students and teachers of more than 5,000 schools across the country. In addition, they supported the government's digital transformation so that educational activities can run smoothly during the pandemic.



Partnership with Unicef

Taking action on climate change

Climate governance

In 2020, CK Hutchison Group Telecom ("CKHGT") embarked on a combined project to: i) develop a carbon footprint (scope 1, 2 and 3), ii) set a science-based target and iii) conduct a gap analysis against the TCFD recommendations. This science-based target will be submitted to the Science Based Target Initiative for validation during 2021.

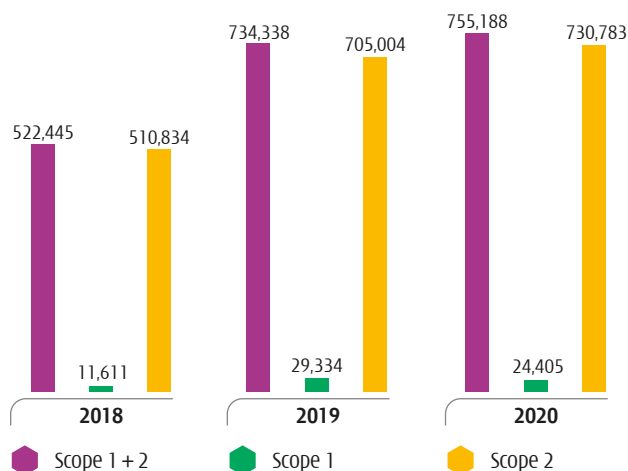
In progressing its emissions reporting and disclosure journey, CKHGT also reported to the Carbon Disclosure Project ("CDP") for the first time in 2020 and received a grade of B-. The CDP also identified CKHGT as among the top ten new entrant scores of companies listed in Asia.

Energy efficiency

The division's scope 1 emissions relate largely to the consumption of refrigerants for cooling as well as the use of transport fuels and natural gas.

Scope 2 emissions relate to electricity consumption to operate network facilities and equipment and owned facilities. Approximately 95% of scope 2 emissions relate to the operation of network infrastructure and plants, such as antennas and data centres which require continuous power supply, as well as air-conditioning to keep the machinery within a constant temperature range. The remaining emissions are attributable to offices, call centres, owned stores and the corporate fleet.

Scope 1 and 2 emissions performance (tonne CO₂e)



Given that the majority of emissions relate to network equipment, high impact projects have focused on:

- Procuring and installing efficient network equipment;
- Decommissioning and replacing legacy equipment;
- Installing energy saving controls and features; and
- Reducing energy demand by installing lower-energy power and cooling technologies.

Due to an exponential increase in traffic and energy needs of the network during the pandemic with more people working and connecting from home, absolute scope 1 and 2 emissions increased by 3% in 2020 versus 2019.



Despite this, there are some successes at the local level. Since the acquisition of the additional 50% share in WINDTRE in 2018, WINDTRE has invested significantly in the process of consolidating and modernising its network in Italy leading to a significant improvement in energy efficiency. WINDTRE has reduced its emissions per unit of traffic by more than 70% (compared to the base year 2016), beating its original target of 50% reduction. This was a target that was developed as part of an ongoing collaboration with WWF.



3 shop in Ireland

In 2020, 3 Ireland also saw a 5% reduction on data centre energy versus 2019, which was directly attributable to the upgrading of more efficient plant and equipment.

LED lighting replacement and controls in stores and offices and the gradual replacement of company vehicles with electric and hybrid vehicles have further contributed to emissions reductions.

Alongside setting a science-based target, the division is also developing a detailed roadmap and action plan identifying the steps needed to achieve its target.

Network energy efficiency and 5G

Mobile networks are predicted to carry [four times the data](#) ⁽⁷⁾ of today's networks by 2025. To meet these increasing traffic demands, while also improving networks and rolling out new 5G frequencies, without network optimisation, the energy consumption of mobile networks is set to rapidly increase.

Machine learning and AI help with network optimisation through traffic prediction by gathering the appropriate data from the network and training the predictive algorithm. This increases traffic prediction precision and improves energy efficiency while maximising user experience.

Intelligent systems enable dynamic management by reducing or even turning off a specific radio carrier or reallocating resources to different network slices which in turn impacts the base stations' cooling requirements and lowers the cell site power consumption.

Recent studies from [Ericsson](#) ⁽⁸⁾ and [Huawei](#) ⁽⁹⁾ show that AI can help to reduce power consumption by up to 15% under current systems. Autonomous networks in the future may introduce even higher reduction. The 5G mobile network's energy efficiency is an essential topic in the telecommunications industry, and the European Telecommunications Standards Institute ("ETSI") and the 3rd Generation Partnership Project have been working on defining different methods for measuring and improving this efficiency.

The division's investments in 5G technology will bring sustainability benefits from virtualised, software-defined networks that use less energy in their compute resource when communications demand is low. This type of network investment has the added benefit of enabling workloads to be moved around the network in the event of failure of a specific network node, and is thus resilient to certain types of failure.

3 UK has installed 20 new data centres in the UK that are equipped with the latest energy saving technologies. When combined with backhaul improvements and a cloud core network, this has enabled increased reliability as traffic can be automatically redirected from a data centre having an issue, to another in real time.



Data centres equipped with energy saving technology

Renewable energy

Currently, the division's networks in Austria and Ireland are powered by 100% green energy and the UK and Sweden's green energy uptake is at 90% and 86% respectively. This accounts for 26% of electricity purchased and the division is currently assessing the maturity of the renewable energy markets in which it operates to understand how it can accelerate the uptake of renewable energy in the division's power mix. 3 Austria and WINDTRE further produce renewable energy through their own solar photovoltaic systems.

Note 7: "Ericsson Mobility Report", available at www.ericsson.com

Note 8: "Why we need a new approach to network energy efficiency", available at www.ericsson.com

Note 9: "The role of AI in creating energy efficient autonomous networks", available at www.mobileworldlive.com



3 Austria's renewable energy installation

Delivering responsible products and services

Along with the positive impacts of connectivity come risks of potential for harm in the dark corners of the web. The division therefore has an important role to play in ensuring the services provided focus on delivering the positive impacts, while combating the negative.

Privacy and cyber security

Customer data privacy and the management of cyber security risks are of the highest priority. With a business environment that is constantly evolving, both in terms of technological developments and regulatory obligations, incidents of data loss in today's world can lead to significant reputational damage and economic losses.

The Telecommunications division's approach is first and foremost guided by the Group-level privacy and security policies as well as the Groups Cyber Security Working Group as already discussed on page 19 in this report.

Privacy

Country-specific Privacy Notices have been developed and targeted to the local regulatory requirements. These are available on the country-level websites in local languages, including clear terms involving the collection, use, sharing, retention and deletion of user data including data transferred to third parties (in addition to opt-outs). Clear contact points are provided for data subjects to raise concerns about data privacy.

The division continues to adopt new control systems to strengthen governance, risk management and compliance to minimise the risk of data privacy breaches. For example, WINDTRE has adopted a Governance, Risk Management and Compliance system that allows it to monitor the entire data processing chain, as well as to analytically assess the level of compliance of each system involved. In 2020 alone, WINDTRE invested approximately €15 million in services and platforms for data and system security.

In consideration of the provisions of the General Data Protection Regulation ("GDPR"), analysis and verification processes have been developed, such as Privacy by Design and by Default, and country-level Data Protection Officers have been appointed. Mandatory GDPR training is provided to all European employees.

Advising customers



Employees handle customer and company data on a daily basis. To ensure employees understand Group expectations in relation to privacy, as well as data privacy laws, the division provides training upon new starter induction as well as on-the-job refresher training. Further, specific training has been developed for sales support staff and system administrators.

Setting appropriate requirements and controls on third party vendors and suppliers is essential in situations where they may collect, store, and maintain confidential information and personally identifiable information. The division establishes requirements and rules for third party access to company information, assets, data, and personally identifiable information. These requirements relate to:

- General security requirements in terms of physical security, access policies, software, hardware and Cloud resources protection;
- Security controls focusing on data protection and compliance;
- Privacy regulations; and
- A list of internationally-verified certifications, standards and frameworks.

These requirements are supplemented with any other compliance requirements in line with country-specific data privacy laws.

Third parties must also undergo rigorous assessments and adhere to the terms & conditions in the data processing agreements. Further in-depth inspections are carried out for selected third parties.

Cyber security

Having robust cyber security systems is one of the division's most critical challenges especially given that in addition to the "usual" personal data, it is also required by regulations to store other data such as call records, location and web browsing history.

To meet these challenges, the division coordinates cyber security efforts across its Telecommunications businesses, and collaborates with wider industry bodies such as the GSM Association and ETSI so that it can counteract and mitigate the latest security threats in both IT and mobile networks.

The division has adopted international standards and frameworks such as ISO 27001 and the NIST Cyber Security Framework to ensure that systems are as secure and resilient as possible, and to ensure compliance with all the applicable laws. These are translated into risk-based operational practices, where security is a key consideration in the design, implementation, running and decommissioning of systems, a principle that has been applied in digital transformation projects at the largest businesses.

People factors are crucial in raising cyber security awareness and maintaining vigilance. The division therefore holds regular online training, for both employees and contractors, to boost staff security awareness especially on aspects relating to phishing and ransomware attacks. Instructor led sessions are also held for high risk functions to reinforce best practice and identify any areas of concern.

Ongoing security risk assessment, vulnerability assessments and minimum control standard checking processes for new products and services are also carried out regularly.

In addition, external consultants are engaged regularly to conduct ethical hacking against the division's networks. These exercises probe not only the IT aspects, but also the people aspects by sending well-crafted phishing emails to gauge staff responses or tailgating employees to gain access to office area in order to plant a device into the company's network.



The division is continuously evaluating emerging technologies to assess relative risks and benefits and developing appropriate security policies and technical capabilities. As with most new technologies, the current set of emerging technologies such as pervasive IoT, automation, AI and quantum computing potentially introduce new threats that need to be addressed. In many of these areas, research and standardisation efforts are underway to mitigate the risks. For example, the development of AI-based and cognitive cybersecurity will be required to avoid AI threats, and the achievement of autonomous self-adaptive and self-preserving networks will require the adoption of privacy-aware networks, zero-trust architectures and cyber-resiliency approaches. Similarly, the transition to quantum-resistant cryptography will be needed to protect against potential quantum attacks.

Child protection

More, and younger, children than ever before are online. This, on the one hand, allows them to learn, play and socialise, but on the other, also exposes them to heightened risks of abuse, exploitation and harm. Keeping children safe online is now an important part of being a parent and a responsibility the division aims to make easier for them to shoulder in protecting their loved ones.

The division has therefore developed a range of resources available to parents and guardians, tailored to the local context, in helping parents protect children while online. In 2020, **3** UK teamed up with online safety experts in the UK, Internet Matters, on a new guide called "My first connected device" which details how to prepare, set up and manage a child's first device safely. To support the launch, **3** UK also held a number of free online sessions to educate parents on online safety.



Keeping children safe online

3 Denmark contributed to the ongoing development, dissemination and regular update of the popular local parenting guide in Denmark, "There is so much parents don't understand – What do I need to know when my child goes online?". The guide targets parents of children between the years of 7-12 years old and offers knowledge, advice and recommendations on childhood engagement with the internet, social media and online games.

In 2018, WINDTRE launched the award-winning "NeoConnessi", an education platform in Italy to help parents and children navigate the online world safely together. The platform provides articles, insights, technical tips, and advice on how to create a healthy tension of control and trust with one's child as they begin their online introduction. Chosen experts and experienced parent bloggers also contribute to ensure content is best suited to the needs of parents. NeoConnessi has also been adopted by schools to further help on their digital education curriculum; in 2019-2020, 5,140 classrooms across Italy received access to the NeoConnessi toolkit. During 2020, NeoConnessi expanded its online capability by launching a support Facebook page for parents and also organised a series of webinars to continue their outreach during the pandemic.



WINDTRE launches education platform

In 2020, **3** Ireland signed a Memorandum of Understanding with An Garda Síochána (the national police service) and other mobile operators to launch an initiative that will block access to websites containing child sexual abuse material. When a subscriber enters a web address containing child abuse material into the browser, the user will now be re-directed to An Garda Síochána's "Stop Page".

Positive impact product

The division is increasingly looking to design and develop product and packaging that is more sustainable, and partner with suppliers with strong sustainability principles.

Addressing conscious consumers

Recognising customers are looking for more sustainable products and services, even through their choice of mobile operator, the division has created a dedicated conscious consumption category of products and services.

Notable examples from this offering include –

The Fairphone

Touted as the most sustainable phone on the market, Fairphone is out to make big impact and 3 Denmark is proud to now be offering this phone to Danish customers. As the name suggests, the Fairphone mission is to build a fairer world by putting people and planet first and drive conversations about what “fair” really means.

Amsterdam-based Fairphone originally began as an awareness campaign on conflict minerals and turned into a phone company in 2013, with the aim to source as many materials as possible in both humane and environmentally responsible ways.

Fairphone's aims now go beyond responsible sourcing to also addressing the circular economy with its durable, modular and repairable design. This therefore enables Fairphone users to modify, update and fix a phone's components if they become damaged or to allow for technology updates. It is also the only phone on the market that comes with a 10/10 score iFixit ranking, a ranking that scores smart phones based on their ease of reparability.

Sourcing green energy through Barry

3 Denmark has also joined forces with Danish start-up electricity provider Barry, a digital electricity supplier that makes it easy for consumers to get smarter, cheaper and low carbon power consumption through the click of an app.

Before the end of 2020, all Danes will have a remote digital meter installed in their home and users of Barry are able to receive a message to tell them when power is cheapest and available from sustainable sources. Upon the launch of the service, 3 Denmark customers were offered the first seven months' Barry subscription free of charge.

Monthly matched donations to WWF

WINDTRE has partnered up with WWF to take part in a programme called “GenerAction Sea” in aid of protecting the Mediterranean Sea and the Italian shoreline. Customers subscribing to the “solidarity option” donate 50c every month which is matched by WINDTRE in order to help protect the marine environment including species at greatest risk, like the Loggerhead Sea Turtle.



Donating old phones to a cause

3 UK's Reconnected programme enables both customers and employees to donate unwanted devices to those in need to be able to carry out fundamental tasks like securing employment, shelter or be able to communicate with their families. 3 Sweden also offers customers the opportunity to donate the value of their trade-in device to the Swedish Childhood Cancer Fund.

Promoting a circular economy

Packaging is regularly reviewed to understand where it can be reduced in size, be made more recyclable, and where paper from responsibly managed forests and recycled sources can be used.

During 2020, the division worked on a project to replace the standard credit card sized SIM holder with a new half-sized format cutting plastic waste in half. The use of eSIMs enable the delivery of a digital profile to a chip on the device, rather than supplying a physical SIM card giving more flexibility and choice to customers for the types of services they subscribe to while reducing plastic and electronic waste. Throughout 2020, the division has been developing a group eSIM platform, while working with the

ecosystem of device vendors across markets to deliver eSIM benefits to customers.

Consumers on average replace their smartphones every **33 months**⁽¹⁰⁾. With approximately 1.4 billion phones being sold annually and only 20% being recycled, that creates substantial hazardous waste among other environmental impacts. The division has trade-in and device buy-back schemes in a number of markets, including Hong Kong, Ireland, Italy, Denmark, Sweden and the UK facilitated by drop-off boxes in retail stores, freepost return envelopes and repair services to encourage customers to repair or return their old devices and accessories. These are then transferred to an accredited third party for reuse or recycling.

Note 10: “Average lifespan (replacement cycle length) of smartphones worldwide from 2013 to 2020”, available at www.statista.com



3 HK supports recycling efforts

Creating a great place to work

Employee engagement

The division runs annual confidential and anonymous employee engagement surveys to assess employee concerns and interests. In the UK, Ireland, and Italy, the dedicated employee engagement programmes “Sense Check”, “Three Vibe” and “Diciamo La Nostra” enable employees to provide honest feedback to help shape what matters most to them. Top management reviews this feedback in understanding problem areas highlighted by employees and plans remedial action. Managers and their teams also discuss and implement changes based on findings. The division also takes

advantage of many other forums to elicit feedback such as through “Tell Us” sessions, onboarding and exit interviews and through external review platforms such as Glass Door, a website where current and former employees anonymously review companies.

Employee engagement measures were moved online to keep employees engaged and connected during the pandemic. WINDTRE launched “Nessuna Distanza”, a sharing platform to help employees stay connected through exchanging news, videos and pictures.



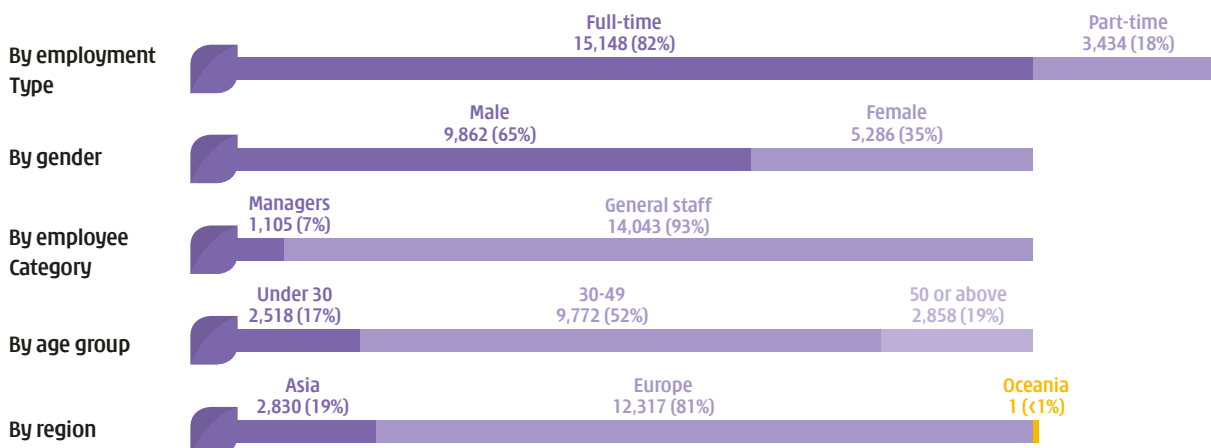
Developing team camaraderie

Learning and development

The telecommunications industry is evolving at a rapid speed with new technologies such as AI and cloud computing demanding more and more from employee skillsets. The division therefore constantly reviews the critical skills employees need to have and invests in developing programmes to keep their skills and knowledge relevant and future-ready.

The Hong Kong and Macau business held a number of digital skills training programmes in 2020 including: Transforming in the Digital Age; Service Marketing 2.0-Digitalised Customer Experience Management & Loyalty Marketing, and a series of IT applications development courses for enhancing both in house and frontline digital tools and applications such as Containers, Kubernetes, and Red Hat OpenShift.

Employee profile as at 31 December 2020



3 UK and **3 Ireland** are building digital skills in areas such as search engine optimisation, search engine marketing, DevOps, DesignOps and Adobe Experience Manager through digital platforms the businesses have invested in.

LinkedIn Learning is also leveraged to give employees access to over 16,000 courses on topics such as AI, data science and business analytics.



Shops reopening after lockdown

The Mindset and Digital Skills Development Programme launched in 2020 aims to prepare WINDTRE employees for the challenges presented by the digital transformation and to develop the necessary skills through a multi-year training programme. The programme includes all employees and is carried out in collaboration with the Technology Department at Politecnico di Milano. The main topics covered in 2020 were: 5G and Network Function Virtualisation, Six-Sigma, Itaca, and Core Network Virtualisation.

Beyond digital skills training, skills gaps are identified through training needs analysis and training is provided accordingly across a wide range of areas such as change management, negotiation, presentation, resilience, storytelling, time management, emotional intelligence, working virtually and business writing skills. The division also supports further education opportunities through education support funds.

Effective and flexible leadership is critical to business success and as such the division has developed comprehensive programmes to facilitate high performance in leaders and their teams.

The Elevate Leadership Development Programme is available to all people managers in the UK and Irish businesses. The programme is updated annually to provide comprehensive growth and development in all areas of leadership. At the senior level, the programme also provides for 180 assessments and 1-2-1 coaching for the participants.

3 UK and **3 Ireland** also have access to the Phenomenal Teams programme which is designed to build high performance teams. The programme takes place over a six-month period and has robust assessment built in to test how effective the interventions have been for the team.

The division has also made efforts over the last year to provide employees with the skills and knowledge needed to integrate sustainability across the organisation. In September 2020, WINDTRE, in collaboration with LUISS Business School, developed and rolled out a sustainability training course for 300 managers across Italy, and rolled out e-learning to employees.

With a view to developing a pipeline of future talent and leaders in the company, the Hong Kong and Macau business hold an annual management trainee programme for university graduates. New recruits participate in cross-functional rotations, in addition to comprehensive training and mentorship from senior leaders before talking on permanent roles within the business.

Inclusion and diversity

The division aims for inclusion and diversity to be in every aspect of its culture. To make progress toward this aim, the businesses have been undertaking internal gap assessments as to what more can be done to address inequality at all levels. **3 Ireland** and **3 UK** both include the topics of inclusion, diversity and belonging in employee engagement surveys and have been actively tracking performance, implementing initiatives where gaps are highlighted and communicating progress made to employees.

3 UK has been working with the National Centre for Diversity to improve its approaches and **3 Ireland** took part in the Investors In Diversity Award assessment process, putting its programmes to the test and receiving recommendations through the process on where their strategy can be made more impactful.

3 Ireland was delighted to have received a Silver rating in its first assessment under the Investors In Diversity Award and will take the recommendations on board in striving for gold.

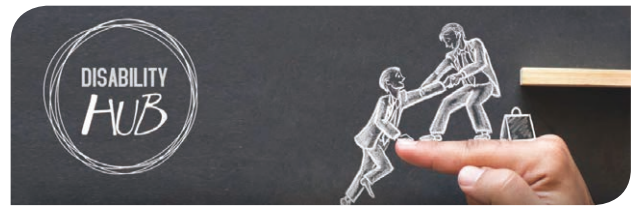
The division is currently creating inclusion and diversity training programmes for employees at various stages of the training life cycle from induction, to general employee training, to manager training. It has also avoided reviews of the recruitment process with a view to avoiding unconscious bias and looking at how it can

attract more diversity in STEM areas. In 2020, **3** Denmark focused on how job postings are designed to attract a more diverse pool of candidates, and to also ensure those eventually called for an interview are similarly diverse.

In Italy, WINDTRE has given additional attention to making its



3 is a great place to work



working environment and programmes inclusive to persons with disabilities by nominating a dedicated Disabilities Manager and establishing a disabilities steering committee including members from HR, IT, Privacy and Health and Safety. A Disabilities Hub has also been developed to promote awareness and ensure the services the business offers are inclusive to those with disabilities.

Seeking feedback internally and externally

3 UK has developed internal and external partnerships to help keep a finger on the pulse as to what makes an inclusive and diverse culture and what leading practice looks like.

Internal networks

3 UK has developed several employee networks across the business providing support to employees as well as feedback to the leadership team on where improvements still need to be made. These network groups include:

- **Women in Tech:** supporting work on gender diversity, equality and inclusion;
- **Pride @ Three:** providing support and information to employees on issues affecting the LGBTQ+ community;
- **BAME & Allies:** working on increasing and supporting BAME (Black, Asian, and minority ethnic) representation particularly in senior roles across the organisation; and

- **Accessibility at Three:** serving as a place for people with accessibility needs, physical or neurodiverse, to share their stories and recommendations to help build a more inclusive business.

Partnering with the National Centre for Diversity

In 2020, **3** UK partnered with the National Centre for Diversity in the UK to hold workshops for people leaders to reflect on the topics of inclusive leadership and positive role modelling, and explore how unconscious bias might be impacting culture. **3** UK is also working with the National Centre for Diversity to review its end-to-end recruitment process to help ensure fairness at every stage and identify further opportunities to improve inclusion and diversity through this process.

“We are a diverse business with employees drawn from all sections of society. I firmly believe that building on this diversity and our employees' sense of inclusion and belonging will help us create a stronger and better business, and in a small way, contribute to a more equal society.”

Robert Finnegan, CEO, **3** UK & **3** Ireland.