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DIGITAL AGE.
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Promise. Assured.

Spirent Communications plc
Sustainability Report 2019

ENTER

ABOUT OUR
SUSTAINABILITY REPORT

Reporting scope and boundaries

This Sustainability Report provides an account of the management approach and performance trends of the material environmental, social and governance issues for Spirent Communications plc. The reporting period is the 2019 calendar year but the Report also includes historical performance data.

This Report includes the activities and impacts that are under the control or significant influence of Spirent Communications plc.

This Report contains standard disclosures from the Global Reporting Initiative Standards. The Report content has been independently assured by Adrian Henriques.

Cautionary statement

This Report may contain forward-looking statements which are made in good faith and are based on current expectations or beliefs, as well as assumptions about future events. You can sometimes, but not always, identify these statements by the use of a date in the future or such words as "will", "anticipate", "estimate", "expect", "project", "intend", "plan", "should", "may", "assume" and other similar words. By their nature, forward-looking statements are inherently predictive and speculative and involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future. You should not place undue reliance on these forward-looking statements, which are not a guarantee of future performance and are subject to factors that could cause our actual results to differ materially from those expressed or implied by these statements. The Company undertakes no obligation to update any forward-looking statements contained in this Report, whether as a result of new information, future events or otherwise.

Recognition

CDP rating 2019
Climate change: B
Supply chain: B

FTSE4Good member 2019

EcoVadis Silver rating 2019

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PROGRESS TOWARDS

FUTURE POSITIVE

I am delighted to introduce the 2019 Sustainability Report which sets out our approach to responsible business and the progress we have made through FuturePositive, our sustainability programme.

Eric Updyke
Chief Executive Officer

Sustainability and corporate responsibility are integral to the success of our business, and contribute to each of our three strategic priorities: Customer Centricity, Innovation for Growth and Operational Excellence.

Customer Centricity

Our strategy has evolved from selling products into development labs to helping customers solve issues across the entire lifecycle of their products. Climate change and greenhouse gas emissions are key issues for our customers. We can help deliver efficiencies in networks, devices and labs, supporting our customers to reduce their greenhouse gas emissions. Our testing solutions are also helping customers to accelerate the development of the next generation of technologies, unlocking the smart energy grids, precision agriculture and autonomous vehicles that will transform society's impact on the earth.

Innovation for Growth

As a global leader in testing and assurance, it is vital that we invest to stay ahead on key emerging technologies. To maintain our leadership in key areas such as 5G, cloud and cybersecurity, we continued to invest heavily in research and development across this year.

Our product development process includes a clear focus on the sustainability performance of our products, and we have delivered significant improvement in the energy and resource efficiency of our products.

As well as investing in product innovation, we remain invested in our people. Across 2019, we saw the first cohort of our senior managers take part in our "Leader. Assured." programme with MIT Sloan School of Management, and we will introduce a new leadership mentoring programme next year to drive a culture of innovation. I am proud of our response to the challenges that the COVID-19 pandemic has brought, taking swift action to keep our people safe and minimise impact to the business. We have not made any redundancies or furloughed any staff, and have adapted quickly to running the business remotely, using technology to provide staff with remote access to our labs and data and keeping our staff connected and supported.

Operational Excellence

The success of our business relies on us doing things right. We are committed to embedding the highest standards of environmental management, social practices and governance within our own operations and across our supply chain.

Our focus on energy efficiency has helped us deliver a fourth consecutive year of reductions in our carbon emissions, which are down 29 per cent since 2014. We also completed a further 22 supplier audits this year, meaning that nearly 90 per cent of our hardware spend is with companies that have been audited by us or by a partner.

We continued to invest heavily in training in 2019 with our team completing nearly 5,000 courses this year, and through our expanded Volunteering and Charitable Giving scheme, our staff completed more than 700 hours of voluntary support.

Our plans for the future

I am very proud of the progress we have made this year. It is a testament to the hard work and dedication of our teams across the world. We will grow our FuturePositive programme next year and take action on a number of key themes.

Climate change will remain a priority issue for us and we will expand our renewable electricity initiatives and introduce further governance processes to manage climate-related risks and opportunities.

Diversity and talent are also key issues and we will introduce a new talent pipeline initiative to encourage talented young people from all backgrounds to get into science and technology and join Spirent.

Eric Updyke
Chief Executive Officer

A TRUSTED PARTNER
TO OUR CUSTOMERS

Spirent helps our customers manage the complexity of their devices, networks and services, enabling them to keep the promises they make to their customers while reducing cost.

We provide innovative test and assurance solutions and trusted expertise that allow our customers to bring better quality products and services to market faster, to automate the turn-up of new services and to proactively identify and resolve problems in their production networks.

Across every one of our businesses we are accelerating the transition of testing and evaluation of devices, network equipment and applications from development labs to the operational network, and evolving from a product-centric to a customer-centric organisation. We will continue to innovate towards fully automated testing and autonomous service assurance and analytics solutions.
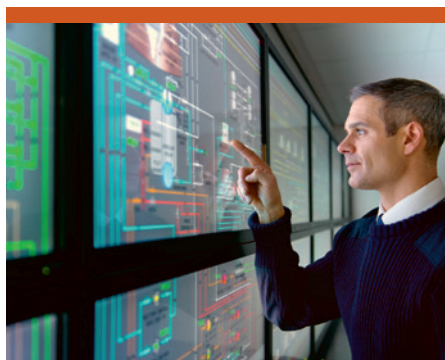
Spirent has around 1,500 employees, serving in excess of 1,100 customers in over 50 countries, and is organised into three operating segments.

What we do

Networks & Security
Performance and security testing to accelerate the development and validation of new equipment, networks and applications for high-speed Ethernet/IP, cloud, mobile and GNSS.

Lifecycle Service Assurance
Solutions for pre-deployment testing of mobile core networks. Cloud-native active test and assurance solutions that automate service turn-up, monitoring and troubleshooting of 5G, LTE, Ethernet, SD-WAN, cloud networks and more.

Connected Devices
Automated test systems and service offerings to test mobile devices and supported voice, video and location services in the lab or on operational networks. Solutions for new 5G air interface technology testing.

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OUR UNIQUE
VALUE CREATION

Spirent provides expert guidance and award-winning testing and assurance methodologies that help our customers overcome the challenges of the fast-approaching future, and ultimately deliver on their promises to their own customers of performance and security.

DEVELOP

Spirent reduces time and cost to develop, secure and launch new products, services and networks.

Spirent's technologies and methodologies begin with testing the most realistic scenarios in the lab. By reducing time and cost to develop, secure and launch new products, services and networks, Spirent helps our customers accelerate time to market and maximise their return on investment.

DEPLOY

We assure things work as expected by testing the most realistic scenarios at scale.

Spirent's solutions bridge the gap from the lab to the live environment and the divide between the development and operational teams. Our solutions help our customers deploy new technologies and services more rapidly and with greater confidence, optimise the validation of networks and business offerings, and improve the customer experience while radically reducing operating costs. By spanning the product/service lifecycle from Develop to Operate with Spirent solutions, our customers can achieve order of magnitude improvements in their businesses.

OPERATE

Spirent improves network performance and customer experience while radically reducing operating costs.

Through highly advanced solutions, such as virtual test agents, we are able to transfer our award-winning lab expertise into the operational environment, providing continuous assurance that reduces operating costs while improving the customer experience.

Our approach

Bridges the gap between development and operational teams to support DevOps across the stack and throughout the service lifecycle.

Facilitates automation of the testing process, of utmost importance when things are moving faster than a human can handle.

Emphasises continuous testing, driven by test and lab automation, to optimise the validation of an organisation's networks and business offerings.

Accelerated time to market

DEPLOY

Validation and automation

Consider that:

- 5G wireless technology is introducing capabilities 10–100 times more advanced than previous generations.

- Smart cities, homes and industries are introducing millions of new connected devices.

- Network operators are virtualising communications networks.

- Enterprises are moving applications to the cloud and experiencing more security breaches every year.

- Organisations are embracing extreme operations automation and looking at every opportunity to reduce human intervention, accelerate the rollout of new services, reduce operational costs and differentiate service quality.

- Autonomous vehicles and drones require months (even years) of testing before they are considered safe for people to use.

Everything is changing rapidly in this digital age. Our customers must keep pace with changing technology while simultaneously reducing operating costs.

Reliable testing and assurance services are more crucial than ever for success today. That is why Spirent has pioneered a unique new approach to testing and validation that enables our customers to better meet the demands of increasing complexity and the evolving environment.

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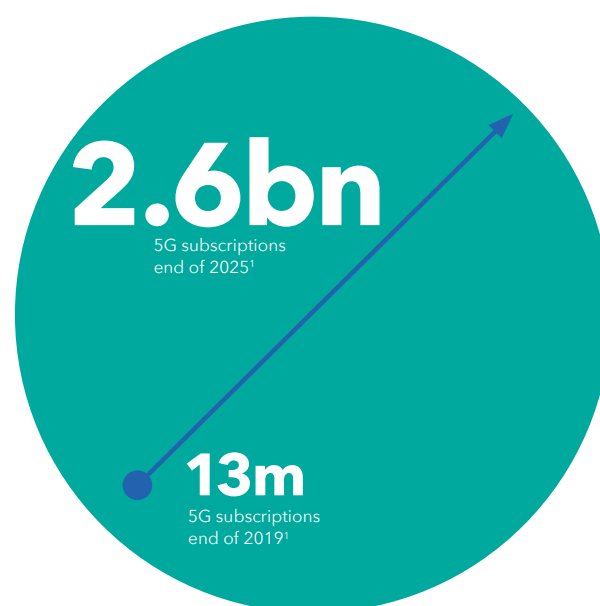Appendix

KEY OPPORTUNITIES FOR
GROWTH AND INNOVATION

Spirent continues to invest to maintain and develop its leadership in key areas such as 5G, cybersecurity and cloud, as well as to apply its industry-leading expertise to emerging areas such as connected and autonomous vehicles. New markets provide us with new opportunities to grow and to build more recurring revenue streams.
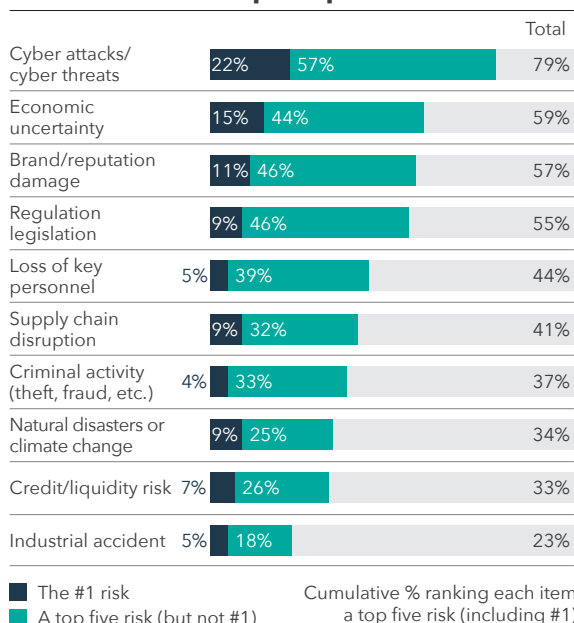
5G momentum

Market driver: 5G technology, driven by the increasing digital, cloud and security requirements of industries such as automotive, logistics, communications, entertainment and manufacturing, represents a crucial change in complexity over 4G.

Opportunities for Spirent: Complex 5G networks that support new services and employ software-defined networking (SDN) and virtualised network functions pose a wide range of new testing and assurance challenges.

Our response: Spirent has developed one of the industry's broadest solution portfolios for 5G testing and assurance, from chipsets, devices and the complex 5G air interface, cloud radio access network (C-RAN) performance and virtualised network function validation. We have solutions to . meet the challenges of complex 5G production network active test and assurance.

2.6bn
5G subscriptions
end of 2025[1]

13m
5G subscriptions
end of 2019[1]

2019 business risk perception[2]

	The #1 risk	A top five risk (but not #1)	Total
Cyber attacks/cyber threats	22%	57%	79%
Economic uncertainty	15%	44%	59%
Brand/reputation damage	11%	46%	57%
Regulation legislation	9%	46%	55%
Loss of key personnel	5%	39%	44%
Supply chain disruption	9%	32%	41%
Criminal activity (theft, fraud, etc.)	4%	33%	37%
Natural disasters or climate change	9%	25%	34%
Credit/liquidity risk	7%	26%	33%
Industrial accident	5%	18%	23%

■ The #1 risk
■ A top five risk (but not #1)

Cumulative % ranking each item a top five risk (including #1)

Cybersecurity threat

Market driver: Annual global cyber losses are expected to hit $6 trillion by 2021, with cumulative cybersecurity spending projected to exceed $1 trillion over five years to 2021[3].

Opportunities for Spirent: Taming the massive complexity of cybersecurity requires new security testing approaches with realistic application load and threat traffic, along with industry-leading security specialists.
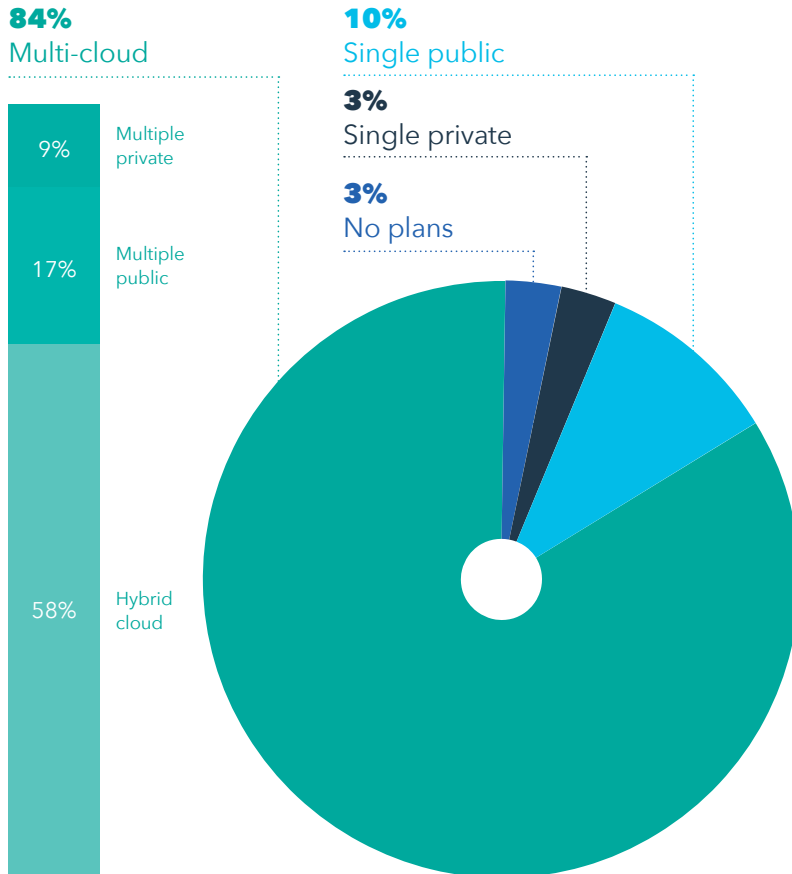
Our response: Spirent solutions include a test platform that generates realistic application traffic and attacks to test the security, performance, and efficacy of application-aware network infrastructures, and service offerings that apply our expertise to comprehensive scanning, penetration testing and monitoring for networks, applications and devices. Our latest solution emulates attacks and other assessment traffic, enabling security operations teams to identify and address weaknesses in their production networks.

Sources
1. Ericsson | Mobility Report | November 2019.
2. Marsh/Microsoft | 2019 Global Cyber Risk Perception Survey | September 2019.
3. Cybersecurity Ventures | Top 5 Cybersecurity Facts, Figures, Predictions and Statistics for 2019 to 2021 | September 2019.

Enterprise Cloud strategy[4]

1,000+ employees

84%
Multi-cloud

9%	Multiple private
17%	Multiple public
58%	Hybrid cloud

10%
Single public

3%
Single private

3%
No plans

Migration to the cloud

Market driver: Cloud adoption by enterprises continues apace, with the worldwide public cloud services market projected to grow from $227.8 billion in 2019 to $404.8 billion in 2023[5].

Opportunities for Spirent: Mitigate key risks involved in moving to multi-cloud platforms by helping to assure cloud infrastructure performance, resiliency and security and successful workload migration.

Our response: Spirent has extended its leadership in the testing and validation of virtualised and cloud ecosystems with a web application that enables predictability and resiliency in cloud infrastructures, the industry's first standards-based test platform for validating network functions virtualisation (NFV) ecosystems, and a comprehensive benchmarking solution to assess and compare the performance of virtualised or cloud infrastructures. It also offers a proactive and realistic cloud and virtual network security testing platform.

Forecast: Fully autonomous car shipments[6]

US, 2018–2025, thousands

2025E	569
2024E	512
2023E	426
2022E	320
2021E	213
2020E	149
2019E	107
2018E	64
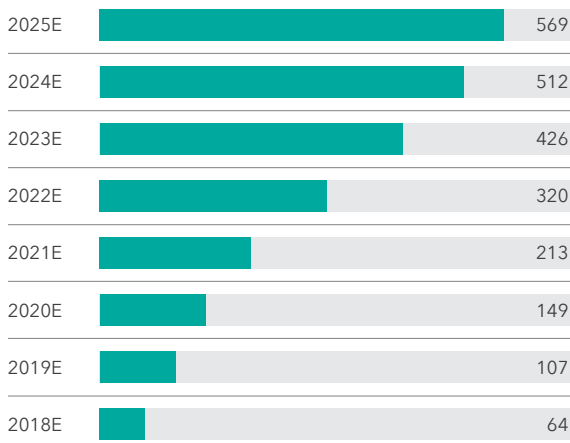
Connected and autonomous vehicles

Market driver: Connected and autonomous vehicles are disrupting the entire industry, requiring huge technology investments and the development of new business models.

Opportunities for Spirent: Wireless connectivity and networking technologies for vehicles need to be tested and secured. Autonomous vehicles' capability to sense their environment and navigate must be tested and assured.

Our response: Spirent has extended its networking test leadership to encompass conformance, functional, performance and security testing of in-vehicle Ethernet networks, including time-sensitive networking (TSN), as well as vehicle-to-everything (V2X) conformance. Spirent is also a global leader in solutions that enable the development and evaluation of robust positioning and navigation technologies for connected autonomous vehicles, and provides solutions and services to help ensure connected vehicle security, including global navigation satellite system (GNSS) threats.

4. Flexera | RightScale 2019 State of the Cloud Report | February 2019.
5. Gartner | Forecast Analysis: Public Cloud Services, Worldwide | November 2019.
6. BI Intelligence Estimates 2017.

ABOUT

FUTURE POSITIVE

FuturePositive is our sustainability programme. Through this programme, we have embedded the highest standards of environmental management, social practices and corporate governance in our business and supply chain, and help our customers tackle important global sustainability challenges.

Our programme is focused on our key areas of impact, risk and opportunity, our materiality analysis, and insights from our stakeholder engagement. The materiality findings are set out in full on page 63.
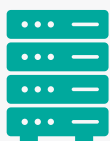
Products
Spirent products are designed with sustainability in mind. Our products help our customers to develop solutions to tackle global sustainability challenges and reduce the impacts of their own operations. Our engineers also carefully consider the lifecycle impacts of our products during the design process, minimising energy use, material use and waste.

Procurement
We actively manage and audit our supply chain to ensure that our suppliers maintain high standards of environmental management, social and labour practices, and corporate governance.

This approach gives us confidence that our suppliers comply with legislation and our Supplier Code of Conduct and builds collaborative relationships, sharing good practice and supporting improvement.

People
We work hard to attract and retain the best talent at Spirent. We have excellent training and development programmes for our staff and also work with schools and universities to nurture engineering skills in young people. Our teams also give back to our communities through our global Volunteering and Charitable Giving programmes.

Property
Our property programme is focused on creating inspiring workplaces with minimal environmental impacts. Our largest impact comes from the energy used in our labs and we have a suite of energy efficiency and carbon reduction programmes in place to minimise our footprint.

Responsible business practices
We have robust structures in place to manage sustainability issues, including a mature and effective corporate governance structure. We have strong leadership from Board level down, with policies and resources in place to manage sustainability issues effectively.

This approach ensures compliance and that we follow good practice. It protects our reputation and ability to grow, and helps us build strong relationships with our stakeholders and improves our understanding of their needs and expectations. It also provides a platform to assess and manage significant sustainability risks and opportunities.

2019 highlights

We have made good progress in all areas of our sustainability programme.
We are pleased to share some of the highlights from the year.

Product

88%
faster

Reduced test duration using Velocity automation tools
We deployed Velocity at our Positioning lab and reduced the QTM satellite track validation test from 60 hours to 7 using Velocity's automation functionality.

Procurement

22
audits

Continued supplier assessment and audits
Our team conducted on-site audits at 22 of our most important suppliers, meaning we have now audited suppliers that account for 89 per cent of our direct hardware supply chain spend, exceeding the increased target of 85 per cent that we set in 2018.

Property

90%
renewable electricity

Renewable energy
We sourced 90 per cent of our electricity from renewable sources in 2019, reducing our carbon footprint significantly.

People

10

Commenced our "Leader. Assured." programme with MIT Sloan School of Management
In 2019, the first cohort of 10 of our senior managers commenced the "Leader. Assured." Executive Education programme.

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2019 highlights continued

Product

2019 achievements

Delivered product sustainability performance improvements and incorporated sustainability information into customer-facing product information.

See page 25

Our plan for 2020

We will expand the Velocity rollout to our Engineering lab at Paignton, and to the labs in Beijing, China and Seoul, South Korea.

We also intend to roll out further test automation and efficiency initiatives across the Positioning business globally.

Procurement

2019 achievements

We continued our supplier audit programme, completing 22 audits representing 89 per cent of our hardware spend. This exceeded the increased target of 85 per cent of spend by 2020 that we set in 2018.

In 2019, our parts from verified sources* increased to 75 per cent, exceeding our increased target of 73 per cent of parts set in 2018.

See page 32

Our plan for 2020

Implement new component compliance software tool and maintain our supplier audit and engagement programme.

We will engage our key suppliers on greenhouse gas emissions, energy efficiency and climate change risk.

*Suppliers which had either been audited by Spirent directly, by our contract manufacturers or through the RBA VAP audit programme.

People

2019 achievements		Our plan for 2020
Ten of our senior managers commenced the "Leader. Assured." programme, run with MIT Sloan School of Management.	**See page 43**	We will rebrand our STEM programme to ensure it resonates with teams across the globe and we aim to increase the number of our STEM Ambassadors from around 60 to 90 by the end of 2020.
We moved away from year end performance appraisal and introduced 360-degree year-round development management meetings.	**See page 37**	We aim to establish 6 new Knowledge Transfer Partnerships with universities across North America, EMEA and APAC.
We expanded our Volunteer Time Off programme to all sites globally and introduced a new Company match programme for charitable donations.	**See page 47**	We will introduce new initiatives to support a talent pipeline to recruit talented graduates and young people into the business.
We grew our team of STEM Ambassadors and ran STEM workshops and activities globally.	**See page 46**	We will run a dedicated Women in STEM programme.

Property

2019 achievements		Our plan for 2020
We purchased 90 per cent of electricity from renewable sources in 2019 and expanded our carbon emissions reporting to include contract-based figures and additional scope 3 emissions sources.	**See page 55**	Increase the proportion of our purchased electricity from renewables to 100 per cent.
We progressed our lab virtualisation and consolidation programme, deploying Velocity automation tools at labs in Paignton, UK, and San Jose, California.	**See page 36**	

PRODUCT

"Spirent is a global leader in innovation technology test and assurance solutions.

Through our test solutions and professional services, we help companies adopt, develop, test and assure the next generation of communication technologies. Through that wide trusted portfolio and a focus towards close partnerships, we help ensure our clients meet their promises to their customers."

Mark Holbrow
Engineering and Product Development Director, GNSS
FuturePositive Product Lead

Priorities

- **Functionality:** Provide solutions that reduce our customers' environmental impacts and help them to develop new technologies that address global sustainability challenges

- **Sustainable product design:** Minimise the impact of our own products, including environmentally friendly product design, energy and material efficiency, and Solutions-as-a-Service

2019 highlights

- **88 per cent faster:** Introducing Velocity to automate testing at our Positioning lab has helped reduce the time to complete the QTM satellite track validation test from 60 hours to 7

- **70 per cent lighter:** New 1U Nebula product is 60kg lighter and uses at least 20 per cent less power than the previous 11U chassis

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Our products

Spirent's test and assurance solutions combine our specialist hardware, software and consultancy from our expert teams.

Our hardware ranges from small, standalone desktop equipment to large, multi-unit, rack-mounted systems. Where we can, we are working to reduce the physical footprint of our test solutions and make them more efficient.

Here are some of the key product lines for each of our businesses.

Networks and security

Spirent is a world leader in network testing and security. Our solutions are designed to develop and test high-speed ethernet/IP, Wi-Fi and automotive ethernet, as well as virtualised networks and cloud infrastructure.

We provide consulting services and test tools to assess security risks in networks and applications and help our customers keep their networks secure.

We continue to be the world leader for global navigation satellite system (GNSS) simulation products and tailored solutions as we expand into the positioning, navigation and timing (PNT) market.

What we test

High-speed ethernet/IP, cloud and virtualisation

Test Centre: We help high-speed ethernet and Wi-Fi network vendors, carriers, cloud service providers and enterprises meet their promise of delivering the next-generation networks. We also validate cloud infrastructure performance and help companies migrate to the cloud and provide actionable insights for cloud performance issues.

Spirent TestCenter N12U chassis is used to test ethernet networks and cloud infrastructure. It can simulate more than 14 terabits of data traffic to test and incorporates intelligent power and fan controls to minimise energy use and heat.

Applications performance and cybersecurity

Cyberflood and SecurityLabs: We test enterprise, network and application security risks through threat emulation and help customers address them.

The Cyberflood CF20 tests the security effectiveness and performance of network and application infrastructure. Cyberflood is also available as a virtual platform.

Positioning, navigation and timing

GSS 7000 and 9000: We support the development of positioning, navigation and timing systems for military, space, research and high-precision applications, as well as location-enabled devices such as smartphones and drones. Our solutions also test resilience against threats and we are a leader in testing for autonomous vehicle development.

The GSS 9000 simulates realistic satellite signals for development and assurance testing. It uses less than half the power of the previous model and has been designed to be upgraded in the field.

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Lifecycle service assurance

We validate and assure the transformation of networks and services across the entire lifecycle, from their development to deployment and operation.

Our Lifecycle Service Assurance solutions radically reduce the time and cost to introduce new services and will rapidly diagnose, troubleshoot and resolve issues with production networks and services.

We do this through automation, insight visibility and analytics, all of which improve customer satisfaction and retention while reducing the cost and complexity of operating and managing a network.

What we test

Cellular and mobile networks

Landslide: We provide performance, scale, and functional testing of mobile, Wi-Fi, IMS and Diameter networks and in the lab and operational networks. We are helping network operators test their infrastructure as they roll out 5G and meet the demands from the growth of the Internet of Things.

The Spirent Landslide C100-M4 is the highest performance Landslide Test Server. It allows network operators to test and emulate networks including 5G and Wi-Fi.

Customer experience

Spirent VisionWorks: We analyse the customer experience on cellular and mobile networks, allowing us to pinpoint the underlying causes of poor coverage and satisfaction. This allows network operators to address problems proactively, helping to retain customers.
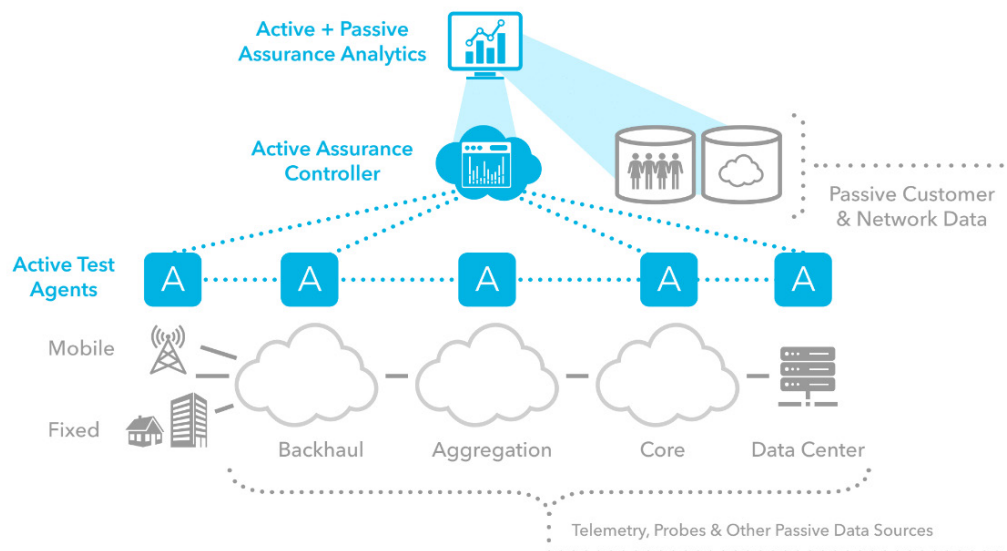
VisionWorks brings together physical and virtual test elements, including InTouch for analytics, Velocity/iTest and Lumos for test orchestration and Landslide and VisionWorks active probes.

Our products continued

Connected devices

Our products help companies which build wireless devices and networks to meet their promise of delivering the very best end user experience. Our live network testing and digital twins for network and radio systems let manufacturers and service providers get to market faster with peak performance. The rollout of 5G is particularly important to our customers in this space.

What we test

Radio systems (5G and Wi-Fi 6)

Vertex Radio Frequency Channel Emulation: Vertex emulates real-world wireless network conditions in the lab to help device developers isolate and resolve performance issues in new products early.

Vertex can be used with Spirent Live2Lab software to deliver reliable drive test results in the lab, reducing the environmental impacts from drive testing devices in vehicles.

Cellular device location and protocol test

8100 Mobile Device Test System: Used to validate how a mobile device will work in a live network before release. Updated in 2019 to emulate 5G networks, the 8100 rigorously tests the emergency calls, location accuracy, voice connectivity and data for carrier acceptance testing.

User experience validation

Umetrex User Experience: Validates service experience by testing real life device use in the field and the lab, including audio, video and data-hungry applications.

Fit4Launch: Helps customers weed out any data, voice and location issues for devices prior to launch using realistic network simulations.

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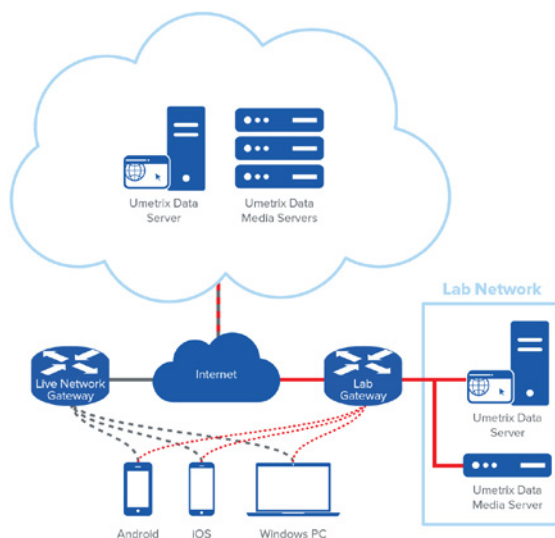
Our sustainable product approach

Our sustainable product program is focussed on two key themes:

01: Product functionality

Helping customers improve the efficiency of their operations, reducing energy use, carbon emissions and costs.

02: Sustainable product design

Reducing the whole-life impacts of our products, from responsible sourcing, through their use to end-of-life.

01

PRODUCT FUNCTIONALITY

Spirent's products can help customers improve the efficiency of their operations, reducing energy use, carbon emissions and costs.

Given the wide range of test solutions we provide our customers, each offer different environmental benefits. We have selected two examples that exemplify the way in which we are helping our customers reduce their environmental impacts.

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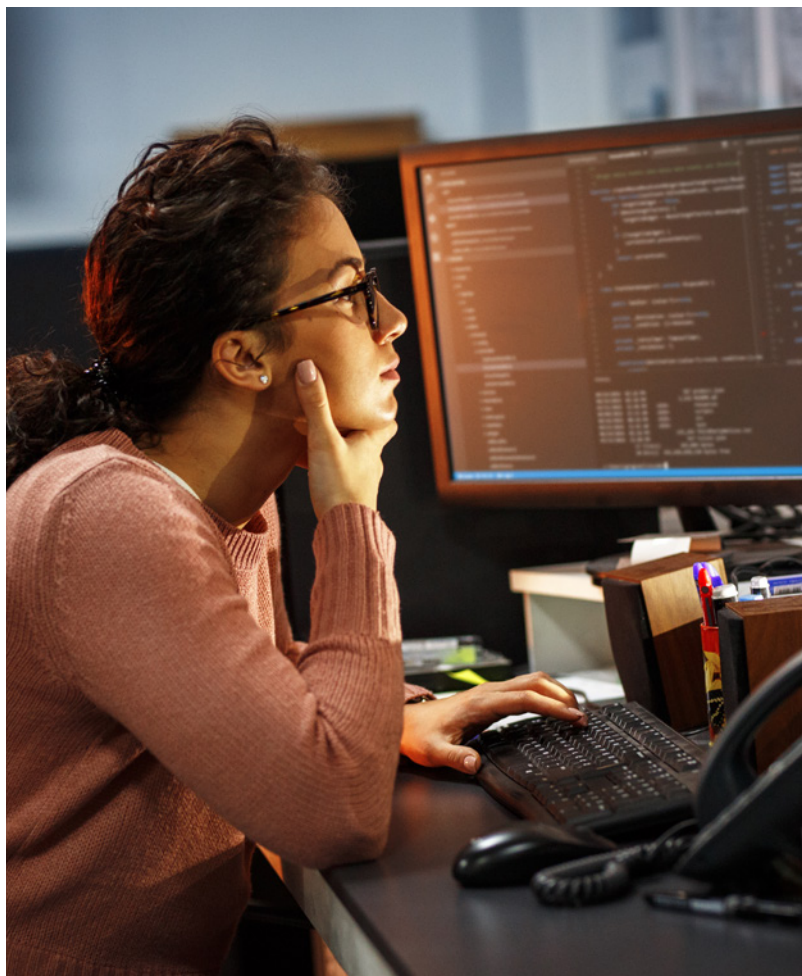
CASE STUDY: NETWORKS & SECURITY

Velocity: Dramatically reducing test time and environmental impacts in R&D labs

Automation and virtualisation are key design objectives for Spirent, as they can dramatically reduce the environmental impact of a product across its whole lifecycle. Velocity helps customers to share lab equipment globally and automate tests, significantly reducing the equipment needed, energy usage, the test duration and costs.

Hardware R&D labs are energy-intensive places, with test equipment and development hardware mounted in racks in a noisy, air-conditioned environment. They can also be inefficient with unused equipment left on, and equipment duplicated across teams either in the same lab or in other locations globally, and there can be long delays between tests as equipment needs to be configured manually. Spirent's Velocity product helps companies to revolutionise their labs, dramatically reducing the time taken to complete tests whilst slashing environmental impacts.

Velocity allows test equipment to be configured and accessed remotely and provides the architecture to automate and schedule tests. Given the typical levels of inefficiency, this can significantly reduce the equipment needed and allow companies to downsize and consolidate their labs, reducing both capital and operating costs as well

as their environmental footprint. Velocity can also integrate with hardware power controls, switching off equipment when it is not needed, unlocking further efficiencies.

By deploying Velocity in R&D labs, Spirent has helped customers to:

- **reduce testing time:** Velocity has helped complete tests four times quicker;

- **reduce equipment needed:** Velocity allows global sharing of equipment, automates test scheduling and improves equipment utilisation by more than 75 per cent;

- **consolidate labs:** Velocity allows engineers to use and configure equipment from anywhere in the world, which means fewer labs are needed. We helped a customer consolidate ten labs into one and will help them consolidate an additional thirteen labs into the same single lab in the next phase;

- **automate power controls for each device:** Velocity can automatically switch off equipment when it is not needed;

- **reduce energy use and carbon emissions:** the improved equipment utilisation can reduce energy use and carbon emissions by more than 60 per cent;

- **reduce noise exposure:** engineers no longer need to work in the lab, reducing their exposure to the high noise environment; and

- **global collaboration:** engineers can access test solutions from anywhere in the world, reducing travel and carbon emissions.

VisionWorks: Active assurance and fault diagnostics for mobile networks

Delivering carbon reductions for 5G network operators

5G will deliver a new level of mobile connectivity, offering users much higher bandwidth and speeds. The 5G revolution will serve the growing data demand from mobile devices for streaming video, games and data-hungry applications, but with speeds of up to 10 Gbps, it will also allow mobile networks to compete with cable internet service operators as well as unlock the huge potential of the Internet of Things.

The importance of 5G to network operators and the complexity of the rollout means having to test service coverage and quality in the early stages of deployment for the first time, a process that has historically relied on manual testing by field engineers. Spirent's VisionWorks allows testing to be conducted remotely, identifying the root cause of performance issues more quickly and without having to dispatch an engineer.

In October 2019, Spirent was selected by a tier 1 US mobile operator to support its nationwide 5G assurance programme.

The operator selected VisionWorks to provide active assurance of its non-standalone (NSA) 5G network. The solution includes:

- VisionWorks Analytics to create KPIs from active test agents, aggregate and analyse data for end-to-end visibility of performance, and intelligently isolate issues; and

- VisionWorks Active Test Agents that cover the end-to-end 5G service path, from device to core network, including 24/7 over-the-air (OTA) testing in fixed locations, and 4G and 5G NSA core network testing.

Spirent's deployment of active assurance has allowed operators to deploy new network functions up to ten times faster, saving millions of dollars a year by reducing the costs of manual testing and troubleshooting and by avoiding service level agreement penalties.
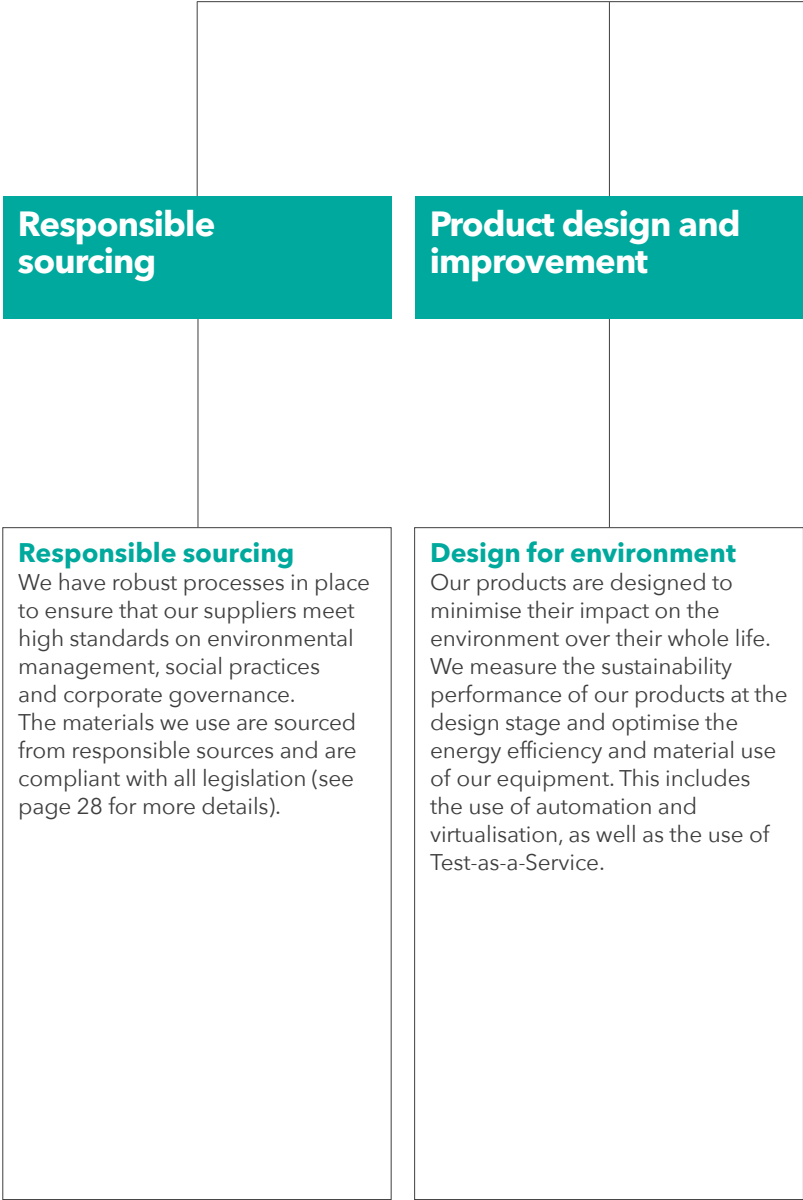
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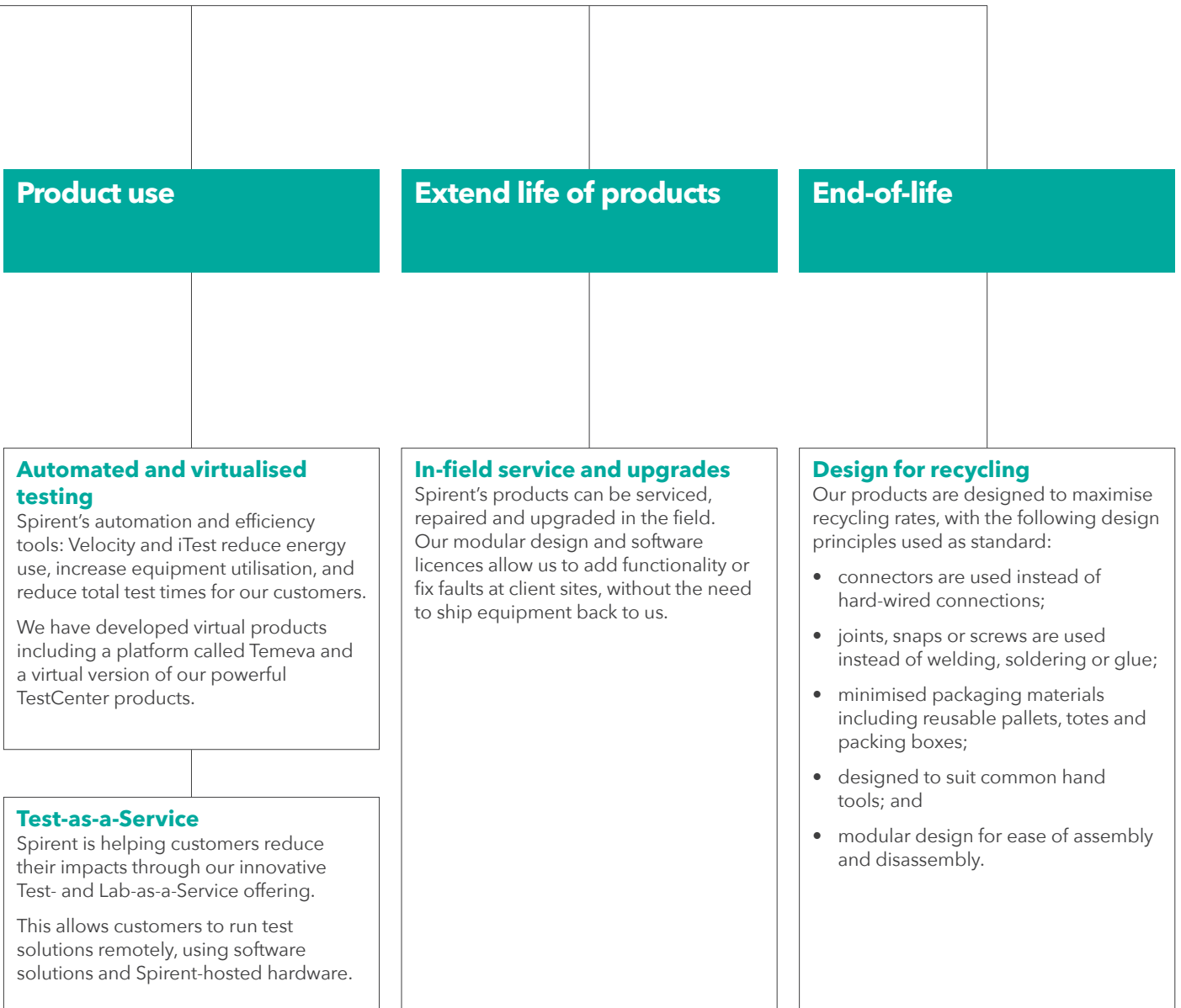Property

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02

SUSTAINABLE PRODUCT DESIGN

Many of Spirent's test solutions rely on physical test equipment used in situ by our customers. We are working to reduce the lifecycle impacts of our products and environments they are used in through a range of ways:

- designing for environment and end of life, including compliance with all legal requirements;

- reducing the size, weight, noise and power use of our products;

- virtualisation and development of Test-as-a-Service;

- improving utilisation and automation; and

- in-field servicing and upgrades.

We use formal sustainability metrics in the product development process across all our business units and have made good improvements in some products released in 2019.

Responsible sourcing

Product design and improvement

Responsible sourcing
We have robust processes in place to ensure that our suppliers meet high standards on environmental management, social practices and corporate governance.
The materials we use are sourced from responsible sources and are compliant with all legislation (see page 28 for more details).

Design for environment
Our products are designed to minimise their impact on the environment over their whole life. We measure the sustainability performance of our products at the design stage and optimise the energy efficiency and material use of our equipment. This includes the use of automation and virtualisation, as well as the use of Test-as-a-Service.

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Product use

Automated and virtualised testing

Spirent's automation and efficiency tools: Velocity and iTest reduce energy use, increase equipment utilisation, and reduce total test times for our customers.

We have developed virtual products including a platform called Temeva and a virtual version of our powerful TestCenter products.

Test-as-a-Service

Spirent is helping customers reduce their impacts through our innovative Test- and Lab-as-a-Service offering.

This allows customers to run test solutions remotely, using software solutions and Spirent-hosted hardware.

Extend life of products

In-field service and upgrades

Spirent's products can be serviced, repaired and upgraded in the field. Our modular design and software licences allow us to add functionality or fix faults at client sites, without the need to ship equipment back to us.

End-of-life

Design for recycling

Our products are designed to maximise recycling rates, with the following design principles used as standard:

- connectors are used instead of hard-wired connections;
- joints, snaps or screws are used instead of welding, soldering or glue;
- minimised packaging materials including reusable pallets, totes and packing boxes;
- designed to suit common hand tools; and
- modular design for ease of assembly and disassembly.

2019 progress

Our work in 2019 has focussed on three key themes:

01: Communicating sustainability information to customers;

02: Improving the sustainability performance of our products; and

03: Lab automation and consolidation with Velocity, iTest and Testbench.

01: Communicating sustainability information to customers

In 2019 we set out to improve how we communicate the sustainability credentials of our products to our clients.

For products like Velocity that help customers improve their sustainability performance, we have prominently set out the potential improvements a client can make in our marketing material. For example, Velocity's just-in-time resource reservation, workflow automation, powering down unused equipment and pooling equipment, is able to reduce energy use by 60 per cent, reduce set-up and testing times, and reduce lab management costs by millions annually.

We have also raised the profile of our products' sustainability performance in hardware collateral and product data sheets. For example, the latest SPT-N12U ethernet and network testing chassis datasheet draws out the size and energy reductions in the main features and benefits, as well as providing power and noise data.

We have also engaged with customers by participating in questionnaires and third-party assessment schemes such as CDP supply chain programme and EcoVadis assessments. Through these initiatives, we have included ways in which we can help reduce our clients' environmental impacts.

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02: Improving the sustainability performance of our products

Cloud and IP: new award-winning high-speed ethernet test solution reduced weight by 70 per cent and power by 20 per cent

Demand for bandwidth continues to increase as we use more streaming video and data-hungry cloud- and datacentre-based applications. To meet this growing demand, manufacturers have developed multi-speed network equipment, and network providers and hyperscale datacentres are deploying multi-rate network infrastructure to support them.

Spirent's new pX3 400G appliance provides market-leading test solutions to test high-density cloud computing/stream services, data centre infrastructure, and the latest generation of Terabit core routers.

We have been able to dramatically reduce the size and power demands to deliver this testing. Previously comparable testing would have been completed using four pX3/dX3-400G modules in an N11U chassis, with a peak power load of 2,010W and weighing 85kg. The pX3 400G appliance is a small form-factor 1U chassis, and weighs only 25kg with a peak power load of 1,600W. This represents a 51W or 20 per cent reduction in the power per slot.

The pX3 400G appliance won "Best of Show – Special Prize" at Interop Tokyo 2019 and "Best of ShowNet Award – Grand Prize" at Interop's ShowNet event.

Navigation and timing: power per channel reduced by 50 per cent in GSS 9000 (6203 SG)

The GSS 9000 is Spirent's leading Global Navigation Satellite System (GNSS) simulator. It is used by developers working on military, space and high-precision applications to emulate real-life GNSS signals.

When we introduced the GSS 9000, it represented a significant improvement in energy efficiency and material use over its predecessor, the GSS 8000: weight was reduced by more than 70 per cent and peak power by 54 per cent. In 2019, we expanded the number of channels that can be run within the same hardware, reducing the power per channel from 3W to 1.6W.

"The small form-factor pX3 400G is 60kg lighter than its predecessor and uses 20 per cent less power."

"We have reduced the power per channel on the GSS 9000 by 50 per cent"

LSA: VisionWorks probe noise reduction

The VisionWorks active assurance platform is used by mobile network operators to test customer experience and pinpoint the underlying causes of poor coverage and satisfaction. The platform includes the VisionWorks VW-7562 test head, which is used to assure services are provisioned correctly the first time.

In developing the VW-7562 we were able to make two key improvements in the product's sustainability performance. The noise has been reduced by 20 per cent, from 75dB to 65dB which is particularly important as the device can be used in desktop environments. We have also moved from a MicroTCA chassis to a fixed component chassis, improving reliability and reducing in-use maintenance requirements.

The VW-7562 is a dual port design which delivers twice the capacity of the existing VW-7561 model. The peak power and total weight have both increased by around 30 per cent, but as capacity has doubled, this delivers an improvement in Watts per port of 35 per cent.

03: Lab automation and consolidation with Velocity, iTest and Testbench

In 2019 we commenced a multi-year rollout of test automation tools within our global labs, leading with our PVT lab in Paignton, UK, and San Jose, California.

The introduction of Velocity has allowed us to consolidate equipment in these labs and significantly reduce test and set-up times. Customers are also able to access the system remotely, allowing our teams to deliver training from our sites.

We have also developed new software tools which enhance the management of test data and licences, which are a critical part of scaling test automation. Using Testbench and iTest has also meant that automated tests are more easily created and debugged, allowing the team to find and address any problems more quickly and easily.

"Using Velocity's test automation tools, we were able to reduce the time to complete equipment QTM validation tests from 60 hours to 7."

The outcomes: Using Velocity's test automation tools, we were able to reduce the time to complete equipment QTM validation tests from 60 hours to 7 whilst also reducing the intervention required by engineers during the test.

Licence updates are now completed simultaneously and automatically, and automated validation tests allow us to conduct more tests and find any issues more quickly.

Plans for 2020: We will expand the Velocity rollout to our Engineering lab at our Paignton site, and to our labs in Beijing, China, and Seoul, South Korea.

We also intend to roll out further test automation and efficiency initiatives across the Positioning business globally.

"VisionWorks' 7562 Test Head is 20 per cent quieter than the previous model."
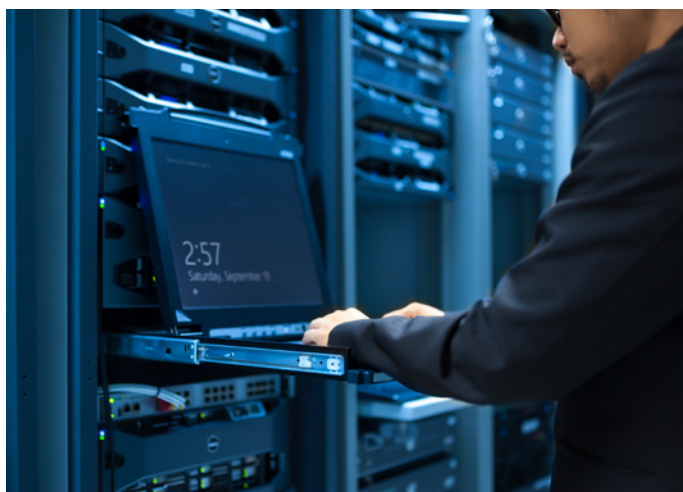
Performance against 2019 targets

Area of focus	Objective	Target
Customer communications	Share product sustainability information with customers	Introduce sustainability and information into customer-facing product information **Complete**
Test automation	Implement test automation tools into our engineering labs	Integrate Velocity and iTest test automation tools into the PVT lab at Paignton, UK, and the lab in San Jose, California. **Complete**

Plan for 2020

Area of focus	Objective	Target
Test automation	Implement test automation tools into our engineering labs	Integrate Velocity and iTest test automation tools into the ENG lab at Paignton, UK, and the labs in Beijing, China, and Seoul, South Korea.

PROCUREME

"Spirent has a global supply chain and sustainability issues play a key part in the way we select and manage our suppliers.

"We set high standards on environmental management, socially responsible business practices and corporate governance for our suppliers, and work in partnership to deliver improvements."

Jim Klaassen
Vice President Global Operations
FuturePositive Procurement Lead

Priorities

The FuturePositive Procurement programme focuses on two key themes:

- **Supplier screening:** We review the environmental, social and governance practices of suppliers during the supplier selection process
- **Ongoing supplier engagement:** We have a programme of ongoing paper-based and on-site reviews and audits to ensure compliance and to drive continuous improvement

2019 highlights

- In 2019, we conducted 22 on-site supplier audits
- 89 per cent of our hardware spend was with suppliers that have been audited in the last four years, which exceeded our target of 85 per cent
- 75 per cent of our components are sourced from suppliers that have been audited by us directly, our contract manufacturers or through recognised industry audit schemes

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Our supply chain

Spirent's product supply chain is global, with more than 850 specialist suppliers across more than 20 countries worldwide.

Our supply chain partners include contract manufacturers, equipment and component manufacturers and resellers, consultancies, R&D partners, software companies and IT service providers.

We work with contract manufacturers in Thailand, the UK, and the US and we source components and equipment directly as well as through our contract manufacturers.

Our supply chain includes a large number of specialist suppliers but 80 per cent of our supply chain spend is with around 50 companies.
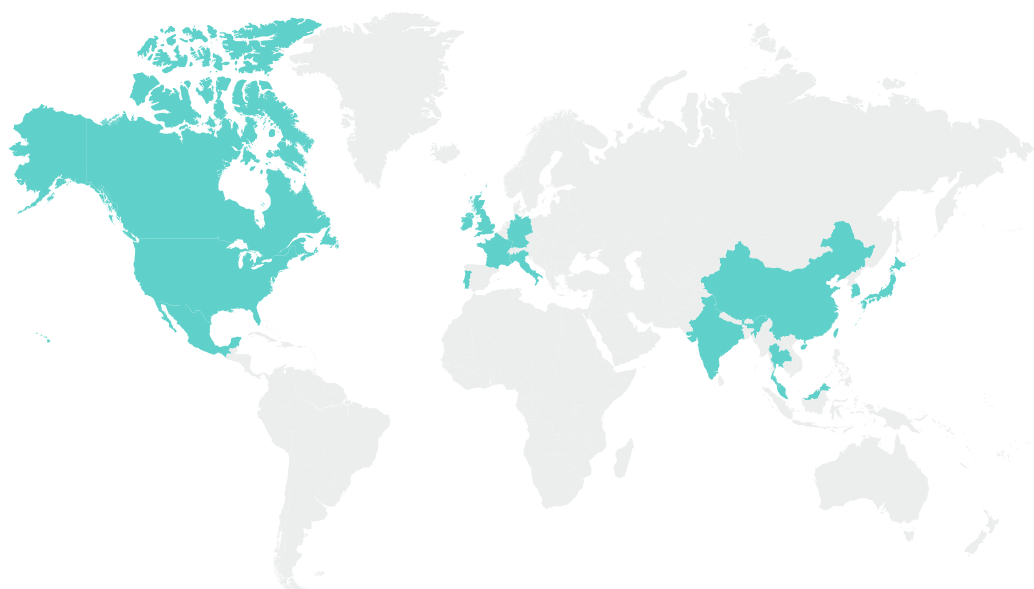
The objective of our sustainable supply chain programme is to ensure our products and suppliers comply with the high standards of environmental management, social practices, corporate governance and business ethics set out in legislation and our Supplier Code of Conduct. We also aim to partner with suppliers to reduce the overall environmental impact of our products and drive continuous improvement by sharing good practices and technologies.

COVID-19

We are carefully managing the COVID-19 situation. The health and safety of our staff is a key priority and we are closely managing the potential impact of the pandemic on our own operations and those of our customers and suppliers.

We are in close contact with our customers and the Supply Chain team has actively managed suppliers and inventory to minimise any impact from the pandemic.

Supplies for our products and solutions are in the vast majority dual sourced to mitigate against potential risk in the supply chain

process. We have also adapted our logistics planning to respond to the reduction in global air freight.

While 90 per cent of our staff have worked from home, many of our Supply Chain and Operations teams have needed to work from our offices. We have implemented robust measures to keep our staff safe, including the provision of PPE, hand sanitising stations and social distancing guidelines.

We will continue to analyse potential implications and implement local government guidelines as the situation evolves in each area where we have a physical site.

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Sustainable supply chain approach

Our sustainable supply chain programme comprises four key themes. Our Supplier Code of Conduct sets out our expectations for suppliers. We review potential suppliers' practices before they are approved and we audit and engage with suppliers on an ongoing basis to ensure standards continue to be met and to drive improvement. We monitor the total spend with suppliers which have been audited, and monitor the proportion of our hardware spend and component parts from audited suppliers as hardware suppliers have a higher risk profile.

Standards	Pre-contract	Ongoing management	
1. Supplier Code of Conduct	**2. Supplier initial assessment and approval**	**3. Supplier engagement and audits**	**4. Parts and spend from verified sources**
Setting expectations of the way that environment, social and governance issues are managed by suppliers	Reviewing potential suppliers' environmental, social and governance practice to ensure they meet our standards before a vendor is approved	Conduct on-site audits and ongoing supplier reviews to ensure suppliers continue to meet our expected standards and to collaborate on improvement opportunities	We monitor the number of parts and the spend with suppliers which have been audited by Spirent, one of our contract manufacturers or through the RBA VAP audit programme

1. Supplier Code of Conduct

Our suppliers are located globally and range from large multinational companies to small family businesses. To ensure good standards on environmental, social and corporate governance throughout our supply chain, we have a Supplier Code of Conduct, based on the Electronic Industry Citizenship Coalition (RBA) Code v5.1.

The Supplier Code of Conduct sets out our expectations for environmental management, health and safety, labour rights, management systems as well as the provision of sustainability data. We expect all our suppliers to meet the standards set out in our Supplier Code of Conduct. It was updated in 2019 to include greater requirements around fraud and money laundering.

A copy of our Supplier Code of Conduct is available here at https://corporate.spirent.com

Spirent's supplier approval and management process allows us to ensure that all new suppliers meet our requirements before we use them and that existing suppliers maintain the high standards we set

New supplier required

Company profile created

Risk rating assigned

Initial supplier assessment

Site audit

Corrective actions

Supplier rejected

Supplier review meeting

Supplier approved

Performance reviews

Supplier audits

Corrective actions
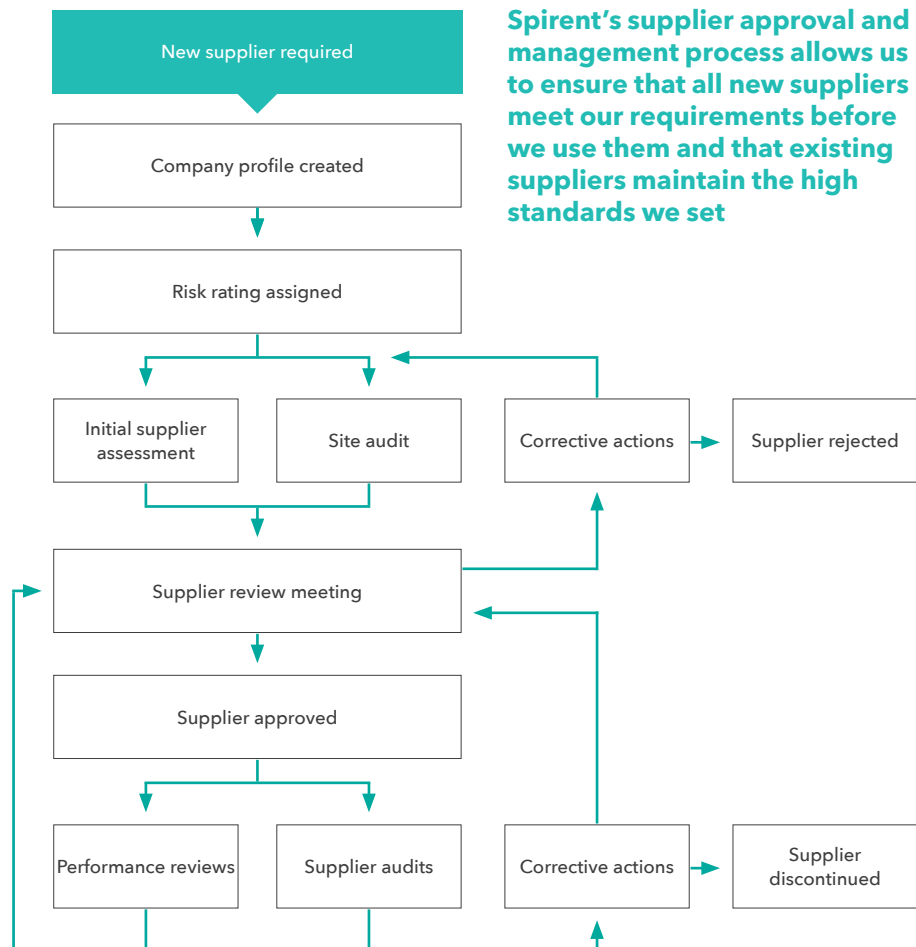
Supplier discontinued

2. Supplier initial assessment and approval

Suppliers' sustainability management is analysed in detail before they can work with Spirent. In 2017, we expanded our supplier questionnaire to cover more sustainability issues in more detail, incorporating additional information security questions. The assessment includes detailed disclosures on financial security, quality, health and safety, information security and environmental management, as well as business ethics and management systems.

The approval status of key suppliers is reviewed each quarter.

3. Supplier audits

We expanded our programme of on-site supplier audits in 2015 to include the management of environmental and social issues. We set a target of conducting audits on the companies that represent at least 80 per cent of our direct spend by 2020. This is around 50 companies and we have aimed to assess around 25 per cent of this group each year.

In 2019, we conducted 22 supplier audits representing 63 per cent of direct hardware spend in the year. The audits raised 3 corrective actions and 15 opportunities for improvement. This includes one non-conformance raised during a joint audit we completed with a contract manufacturer. No further non-conformances were raised during RBA VAP audits or manufacturer audits.

Non-conformances were identified relating to quality inspections and record keeping, with opportunities for improvements including product quality, material testing and labelling, the inclusion of sustainability issues in the supplier audits completed by our vendors, the use of conflict minerals, health and safety, and succession planning.

The audits not only demonstrate our strong commitment to embedding sustainability across our whole value chain to our suppliers, but also provide a valuable framework to share innovation and good practice. Our close collaboration with suppliers has meant improvements in quality, cost management, environmental management, and health and safety, and identified new market information and technologies for the Group.

We focus our supplier audits on companies that we do the most business with, those which supply critical components, those which operate in higher-risk geographies, and those which undertake activities with the largest potential impact.

In addition to our direct audits, we collaborate closely with our contract manufacturers to expand our visibility of sustainability management and performance further down our supplier chain. Drawing on the Responsible Business Alliance (RBA) industry-wide Validated Audit Process (VAP) and audits conducted by the contract manufacturers themselves, we are able to determine compliance further across our supply chain. In 2019, we also conducted joint supplier audits with our largest contract manufacturer.

"Over the last five years, our sustainable supply chain programme has helped us understand how key environmental, social and ethical issues are managed by our suppliers. Our on-site supplier audits have helped us to build better supplier relationships and we have been able to share good practice and introduce new technologies and approaches."

Fanny Yan
Director, Global Procurement

Audits completed — Target

Supplier audits
We have completed 70 on-site audits in the last four years, exceeding the target we set each year. In 2019, we completed 22 supplier audits.

% of Spending to Verified Source — Target
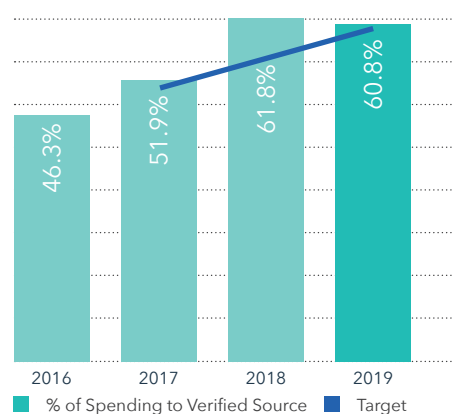
Total spend with verified sources
Our spend with companies that have been audited has increased from less than half in 2016 to 61 per cent in 2019.

% of Hardware Spending to Verified Source — Target
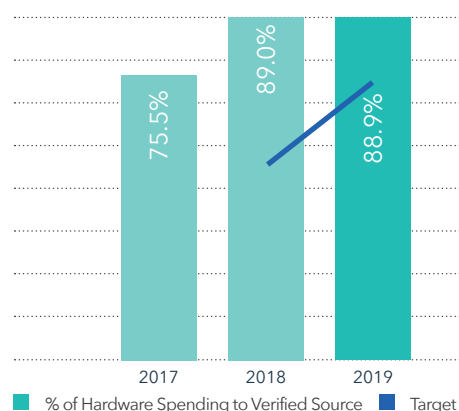
Hardware spend with verified sources
Nearly 90 per cent of our hardware spend is now with companies that have been audited by Spirent, one of our contract manufacturers or the RBA VAP scheme, up from 75 per cent in 2017.
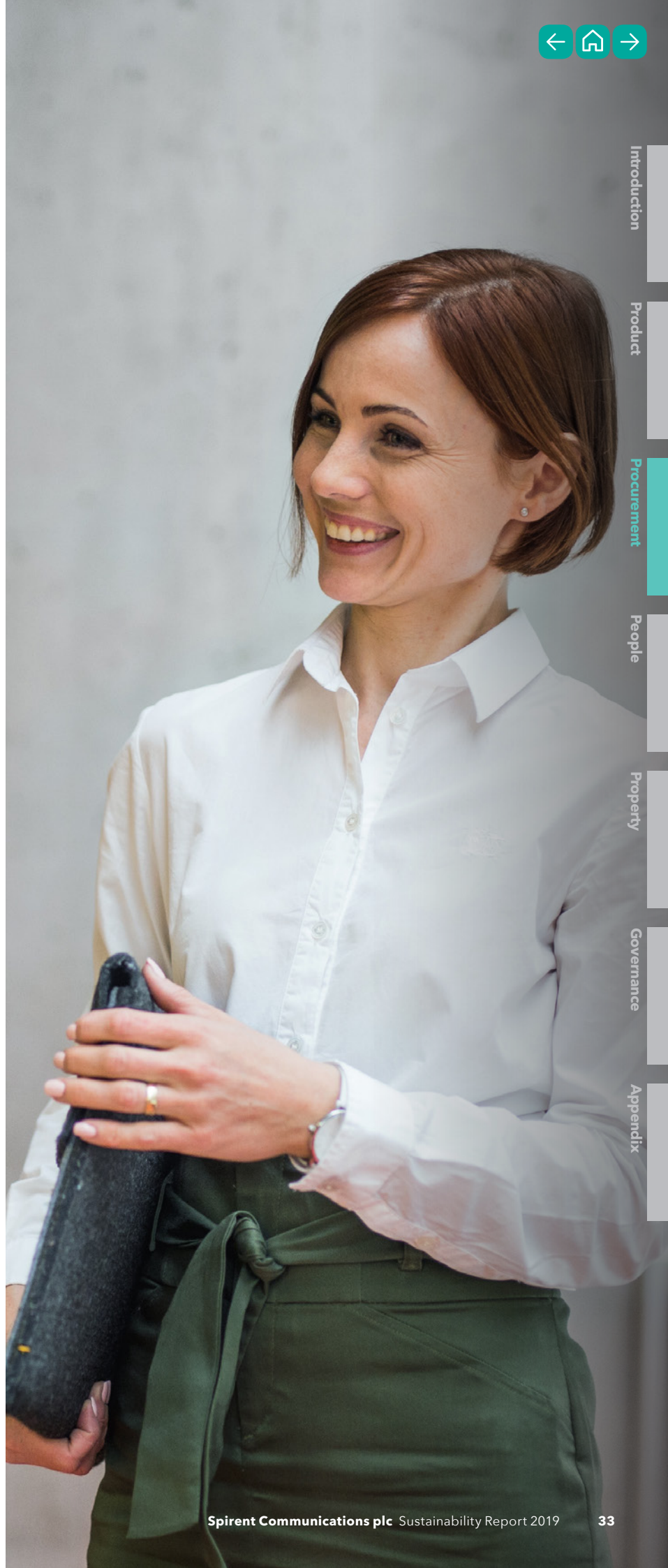
4. Supply from verified sources

As the component supply chain includes higher environmental and social risks, we monitor the number of parts sourced from verified sources: suppliers which had either been audited by Spirent directly, by our contract manufacturers or through the RBA VAP audit programme. We also monitor total spend and hardware spend with verified sources and ensure we maximise sourcing from our Preferred Supplier List.

In 2017 we set a target to ensure that 60 per cent of all parts purchased were from verified sources. We set increased targets in 2018 (71.4 per cent) and 2019 (73 per cent). We exceeded the target each year and achieved 75 per cent in 2019.

We require all suppliers to complete a vendor assessment satisfactorily before we work with them; however, we recognise that new vendors may require time to address corrective actions and some new vendors may only provide a small number of parts used in prototyping. As a result, we set a target that a minimum of 75 per cent of our new key suppliers categorised as Risk A in 2019 satisfactorily completed a vendor assessment survey within the year (target increased from 70 per cent in 2018). There were five new Risk A vendors in 2019 and four completed a survey satisfactorily (80 per cent), meeting the target set.

Typically, components from new vendors are used in prototypes or new products. The vendor that did not pass the assessment in 2019 has been assigned as "disqualified for new design" until corrective actions have been implemented by the supplier and verified.

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Our supply chain continued

<table>
<tr><td colspan="4" style="background-color:#2db6b0; color:white;">Performance against 2019 targets</td></tr>
<tr><th>Area of focus</th><th>Objective</th><th>Target</th></tr>
<tr>
<td>Supplier audits</td>
<td>Conduct 18 on-site audits</td>
<td>Conduct 18 on-site audits

Achieved: 22 audits completed</td>
</tr>
<tr>
<td>Supplier audits</td>
<td>Conduct site audits for suppliers representing 85 per cent of direct hardware spend by end of 2020</td>
<td>Audit suppliers representing 85 per cent of hardware spend by end of 2020

On track: current status 89 per cent</td>
</tr>
<tr>
<td>Components from verified sources</td>
<td>Ensure components are sourced from verified sources (vendors that have been audited by Spirent, our contract manufacturers, or as part of the RBA VAP audit programme)</td>
<td>73 per cent of all component parts from verified sources

On track: current status 75 per cent</td>
</tr>
<tr>
<td>Risk A vendor satisfactory questionnaire response</td>
<td>Ensure that at least 75 per cent of all new vendors rated Risk A satisfactorily complete a vendor questionnaire</td>
<td>75 per cent of all new Risk A vendors satisfactorily complete a vendor questionnaire

On track: 80 per cent of new Risk A vendors submitted satisfactory questionnaires in 2019</td>
</tr>
<tr>
<td>Supplier compliance software</td>
<td>Implement software solutions to enhance supplier screening capabilities and manage environmental component compliance</td>
<td>Implement a software solution (Supply Chain Transparency Module) to automate supplier screening in relation to sanctions, codes of conduct, embargoes, supplier audits and country-specific risks

Implement a software solution to streamline and enhance compliance documentation for components (Compliance Map)

Ongoing: we commenced implementing our supplier data into the Supply Chain Transparency Module of our Compliance Map software and expect the first phase to be completed by H1 2020</td>
</tr>
</table>

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Plan for 2020

Area of focus	Objective	Target
Supplier audits	Conduct 18 on-site audits	Conduct 18 on-site audits
Supplier audits	Conduct site audits for suppliers representing 85 per cent of direct hardware spend by end of 2020	Audit suppliers representing 85 per cent of hardware spend by end of 2020
Components from verified sources	Ensure components are sourced from verified sources (vendors that have been audited by Spirent, our contract manufacturers, or as part of the RBA VAP audit programme)	73 per cent of all component parts from verified sources
Risk A vendor satisfactory questionnaire response	Ensure that at least 75 per cent of all new vendors rated Risk A satisfactorily complete a vendor questionnaire	75 per cent of all new Risk A vendors satisfactorily complete a vendor questionnaire
Supplier compliance software	Implement software solutions to enhance supplier screening capabilities and manage component compliance	Implement a software solution to automate supplier screening in relation to sanctions, embargoes and country-specific risks Implement a software solution to streamline and enhance compliance documentation for components

PEOPLE

"Spirent has a remarkable team. The nature of our work means that we are always working on the very latest technologies, which requires specialist engineering and technical knowledge.

"Our people programme at Spirent is focused on skills, knowledge and community investment. We seek out the best people to come and work with us and we invest heavily in their skills and knowledge. Our STEM initiatives aim to nurture exceptional talent and create opportunities for young people, and our community initiatives allow us to give back to our communities, all across the world."

Ann Menard
Global HR Director
FuturePositive People Lead

Priorities

The FuturePositive People programme focuses on three themes:

- **Skills and knowledge:** We invest in excellent training and development programmes for our staff and partner with learning universities on knowledge transfer
- **STEM:** Our Spirent STEM Ambassadors run initiatives with schools and universities to encourage young people into STEM careers
- **Community investment:** We have a global programme of charitable giving and volunteering initiatives help us give back to our communities

2019 highlights

- Ten of our senior managers commenced the "Leader. Assured." programme with MIT Sloan School of Management
- We introduced a new staff survey which will gather employee feedback every six months
- We moved away from year end performance appraisal and introduced 360-degree year-round development management meetings
- We expanded our Volunteer Time Off programme to all sites globally and introduced a new Company match programme for charitable donations

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Our people

Our business relies on a team with exceptional skills, knowledge and abilities.
We work with new technologies across all parts of our business, meaning a large part of our team is made up of specialist engineers and technicians with cutting-edge knowledge and skills. Our Sales teams are also highly technical and work closely with clients to create bespoke solutions that will unlock the next generation of communications technologies.

It is critical for us to attract and retain the best people and grow their skills as we grow as a business. It is also critical that we recruit the best people, regardless of their background, and that we address the barriers that prevent talented people getting into engineering and science careers.

COVID-19

We responded quickly to the risk posed by COVID-19 to our staff and business in 2020. The Risk Committee meets each week to monitor developments in risk and policy, and adapt our response.

The health and safety of our staff is our main priority. We were proactive in sourcing PPE and early in March 2020 we directed all staff who could work from home to do so. 90 per cent of our staff are currently working from home and we have deployed resources to ensure that they remain safe and effective. This has included conducting health and safety risk assessments and expanding the technical infrastructure to allow staff to access data and lab equipment remotely.

There is a small number of staff who need to be on site, including our Operations and Supply Chain teams, Facilities and Maintenance staff, and some Engineering staff. We have introduced robust health and safety measures on our sites, including face masks, sanitisers and social distancing to ensure our staff are kept safe.

Some members of staff have contracted COVID-19, but there have been no hospitalisations and no staff deaths.

We have not made any redundancies or furloughed any staff due to COVID-19. Some staff who are not able to carry out their role, such as receptionists and travel bookers, have been redeployed within the business. Some have supported our staff wellbeing initiatives, making calls to members of staff to keep in touch and provide help and advice where needed.

We have continued to hire over this period and have introduced new processes to keep staff engaged, safe and connected. We run virtual coffee morning chats three times a week and the management team has been in regular contact with staff through virtual all-hands meetings and update emails. We have developed new virtual onboarding and training approaches to continue our staff development.

We are currently making plans to return staff to the offices in a safe manner, and are exploring the opportunities to retain the benefits for staff and the business that flexible working has brought.

Employee engagement

In 2019 we introduced a new employee survey. The survey, which will be conducted twice each year, reviews performance against 17 key themes. The results from the surveys completed in April and November 2019 have helped us to identify some areas of good performance, including fairness and staff feedback, and some areas for improvement, including around taking holiday and goal support.

We have had good engagement in the surveys with more than 90 per cent of employees responding to the questionnaires. The surveys have shown improvements, especially in relation to purpose. In successive surveys, employees reported feeling that they had a better understanding of our purpose as an organisation and better alignment of their role with our corporate objectives. Employees have the opportunity to provide open-ended feedback and the management team is using the survey results and employee comments to adjust our policies and practices.

Diversity

We recognise workplace diversity as a strength and our Business Ethics and HR policies set out commitments to encourage diversity and prevent discrimination in any form. All people are treated fairly and honestly regardless of their colour, race, religion, marital status, sexual orientation, disability or age.

Diversity remains an area we need to improve in, with women and young people under-represented in our workforce. In 2019, we introduced a new diversity policy which will guide our work in the coming years.

Gender
There have been only minor changes in the overall gender balance in the Company from 2018.

Two women serve on our Board of seven (29 per cent female representation), compared to the average for the FTSE 250 (29.6 per cent) and technology companies in the FTSE 250 (27.4 per cent). The Hampton-Alexander Review on Improving Gender Balance in FTSE Leadership

published in November 2019 places Spirent as having the fourth highest female board representation for technology companies in the FTSE 250.

The proportion of our female senior managers increased for the second year running to 17 per cent (up from 9 per cent in 2018) although this remains slightly lower than female representation for the Company as a whole. Around 21 per cent of our employees are female (2018 21 per cent) and 22 per cent of our managers are female (2018 20 per cent).

Female representation is low in some departments including IT (5 per cent), Sales (7 per cent), Global Services (12 per cent), Marketing (18 per cent) and Engineering (21 per cent).

Level of organisation	Female		Male		Other or no gender reported		Total
Board	2	28.6%	5	71.4%	–	–	7
Executive Management[1]	2	18.2%	9	81.8%	–	–	11
Senior Management[2]	2	4.9%	39	95.1%	–	–	41
Total employees	297	21.5%	1,074	77.7%	11	0.8%	1,382

Notes
1 The data for Executive Management includes direct reports to the CEO only.
2 The data for Senior Management includes all other Vice Presidents (including Regional Sales VPs and Client Partner Executives) and Senior Directors.

The under-representation of women at all levels at Spirent and the technology sector in general is a key challenge for us, and whilst we recognise improvements have been made this year, there remains significant work to do to achieve greater representation. Our STEM programme specifically aims to address the gender gap in our business and sector, and we have set targets to complete Women in STEM events in each region in 2020 to increase its impact.

Gender pay gap
Having fewer than 250 employees in the UK, Spirent is not currently required to comply with the gender pay gap reporting regulations introduced in 2017. However, data for the 5 April 2019 snapshot date has been collected on a voluntary basis and is set out below.

UK Gender pay gap

	Mean	Median
Hourly pay	14.8%	31.2%
Bonus Pay	28.1%	34.3%

UK Bonus gap

	Male	Female
Bonus	94.6%	93.5%

UK Quartile split

	Top quartile	Upper-middle quartile	Lower-middle quartile	Lower quartile
Male	90.0%	85.0%	85.0%	65.0%
Female	10.0%	15.0%	15.0%	35.0%

The Board will continue to review outcomes of the gender pay gap reporting process and will encourage the Executive team to look at ways to reduce the gap across the Group.

Our people continued

Age

Spirent's workforce has a diverse age distribution. The largest age group remains 40–49 (34 per cent) but less than 10 per cent of our employees are under 30.

Age group	2018		2019	
<20	–	–	1	<1%
20–29	93	6%	92	6%
30–39	393	28%	377	26%
40–49	489	35%	488	34%
50–59	326	23%	360	25%
60+	113	8%	117	8%
Total	1,414		**1,435**	

Voluntary employee turnover

We cannot avoid the fact that some of our employees will move on but we can avoid a skills shortage by appropriately managing, recognising and rewarding our people. Voluntary employee turnover is a measure of how successful Spirent is in its strategy of retaining and investing in its people.

Spirent's success is dependent on its talented employees and retaining them is extremely important. Voluntary employee turnover compared to the industry average is the measure used to assess how well the Group has performed.

Our 2019 voluntary turnover rate of 7.6 per cent remains well below the global industry average of 12.3 per cent.

We aim to make Spirent a great place to work and one where everyone can thrive. Our low staff turnover rate demonstrates that we are succeeding in this.

Parental leave

All staff entitled to parental leave in 2019 took leave. The return rates and retention rates after 12 months are as follows:
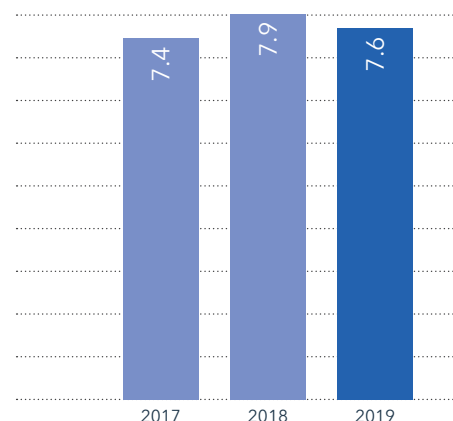
Voluntary staff turnover
Voluntary turnover rates have remained low over the last three years, on average 7.6 per cent. This is well below the sector average of 12.3 per cent.

Region	Gender	Entitled	Taken	Return rate	Employed after 12 months
North America	Male	4	4	100%	100%
	Female	4	4	100%	75%
APAC	Male	12	12	100%	100%
	Female	2	2	100%	100%
EMEA	Male	9	9	100%	89%
	Female	1	1	0%	0%

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Support programmes at career endings

We recognise that we have a responsibility to help members of staff who leave the Group due to organisational restructuring to find a new role, and we provide a flexible outplacement service which is tailored to the needs of the member of staff. Staff are allocated a budget to spend as they see best on a range of support services including personal coaching, training and job search support.

In 2019, 28 members of staff left the Group due to organisational restructuring.

Region	Gender	Outplacement services
North America	Male	15
	Female	7
APAC	Male	3
	Female	–
EMEA	Male	3
	Female	–
Total		**28**

Employee benefits

Spirent offers a comprehensive suite of benefits to employees across all regions. This includes health insurance, life insurance, disability, 401(k)/pension, parental leave and paid time off/vacation.

Our people approach

Our people approach focuses on three key themes: skills and training for our staff, programmes to engage young people in STEM subjects and careers, and investing in our communities.

01: Training and skills

Investing in the skills and knowledge of our team and building knowledge partnerships with leading universities

02: STEM

Supporting awareness and engagement with Science, Technology, Engineering and Mathematics (STEM) subjects amongst young people

03: Community investment

Investing time and resources into projects that create lasting value in the communities where we work

01

TRAINING AND SKILLS

Training is one of the most important areas for Spirent and the Group has well-developed technical and compliance training processes in place for our employees.

Our training and skills approach focuses on three key areas:

Employee learning and development
Structured training and skills development for employees

Spirent has a well-established learning and development programme, providing employees with technical and business administration training. Training is managed through personal development plans, and delivered through online and in-person training, peer mentoring and informal skills sharing.

In 2019, Spirent employees completed more than 16,000 hours of training, with those in technical engineering or sales roles completing more than 17 hours each on average.

The most frequently completed training courses included IT and data security, legal compliance, technical training and professional development including management skills.

Course content	Courses completed
IT security	1,645
Legal compliance	1,080
Technical training	763
Global anti-bribery	605
Professional development	503
IT skills	220
Health and safety	118
Total	**4,934**

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Performance reviews

In 2019, performance reviews were completed for 1,438 members of staff:

	Category	North America		APAC		EMEA		Grand total
		Male	Female	Male	Female	Male	Female	
Manager	Engineering	41	6	8	3	10	–	68
	Other	66	24	16	7	23	12	148
	Sales	32	2	32	2	11	–	79
Manager total		139	32	56	12	44	12	295
Non-manager	Engineering	186	56	63	26	45	3	379
	Other	222	85	73	29	65	25	499
	Sales	122	12	83	5	40	3	265
Non-manager total		530	153	219	60	150	31	1,143
Grand total		669	185	275	72	194	43	1,438

CASE STUDY: "LEADER. ASSURED." PROGRAMME

Investing in leadership skills

Spirent's "Leader. Assured." programme is designed to strengthen leadership across the organisation. The programme includes executive education courses, knowledge sharing and mentoring schemes, and initiatives to apply the new skills and knowledge within our business.

Executive education with MIT Sloan School of Management

In 2019, the first cohort of senior managers commenced the "Leader. Assured." executive courses run with MIT Sloan School of Management. The 10 leaders from across the business completed 23 modules during 2019.

The programme includes three required courses covering problem solving, finance for technical executives and strategy execution, alongside an elective module. The team can choose from a range of modules that address innovation, communication and productivity.

So far, two of the cohort have completed all four modules and have received the Executive Certification. Courses can be taken at a time that suits the team and this year's programme runs until August 2020.

Knowledge sharing, mentoring and business improvement

A key outcome from the programme in 2019 was knowledge sharing and cross-functional collaboration between the "Leader. Assured." participants. The outcomes have included expanding functionality for the Fit 4 Launch product to include a new security component, and a project to strengthen alignment between Senior Management and functional execution leaders.

The collaboration has also identified specific opportunities to add value to customers by introducing additional Spirent services and products.

In December, we initiated the mentoring programme assigning mentoring partners and arranging the programme for 2020. The "Leader. Assured." participants have also initiated knowledge sharing sessions from the elective courses.

What's next?

Our mentoring programme will run throughout 2020, with workshops and external coaches and personal leadership training. We also aim to kick off two new initiatives: the CEO challenge and Action Learning Groups to put concepts covered in the courses into action.

Training and skills continued

World-class research collaboration
Knowledge transfer partnerships with universities

To ensure we stay at the forefront of emerging technologies, we have developed knowledge transfer partnerships with universities across the world, including the Universities of Warwick, Cranfield and Bath in the UK and the German Technical Institute.

Our engineers work closely with academics with particular areas of expertise to share knowledge and expand the capabilities of our test solutions.

Our work with the University of Warwick focuses on 5G technology rollout and the integration of satellite and Wi-Fi signals for improved location accuracy for connected cars and smart devices.

Our partnership with Cranfield is focused towards research into the development of resilient positioning and navigation solutions for aviation applications.

Our relationship with the University of Bath focuses on space weather and its impact upon GNSS Positioning, Navigation and Timing (PNT).

The knowledge transfer partnerships (KTPs) have proved immensely successful, with our KTP with the University of Bath assessed as "outstanding" by the KTP Grading Panel. More information on the KTP programme can be found at https://ktn-uk.co.uk

What's next?

In 2020, we aim to start six new partnerships with universities across the world to ensure that we continue to lead on technology.

Supporting higher and further STEM education
Placement students and internships, apprenticeships, partnerships with higher education

Spirent runs a number of schemes to support higher and further level STEM education. We run work experience, apprenticeships and industrial placement schemes and we sponsor the most promising placement students in their final year at college. In 2019, we ran programmes in China and East Asia, the UK, the US and India.

We work closely with local colleges and universities and provide input to the curriculum to ensure the most up-to-date skills and technologies are included.

	UK	India	China	North America
Interns and placement students	4	3	13	21
Graduate new starters[1]	1	1	–	1
Apprentices	1	–	–	–

Note
1   Students who have joined the Company on completion of their internship or industrial placement, either immediately or after completing their university course.

Internships and placement students

Spirent hosted 41 interns and industrial placement students in 2019. 21 students joined us in the US from 16 leading universities. The students are studying for undergraduate and postgraduate degrees in computer science, engineering, mathematics, law, business administration and cybersecurity.

In APAC, we hosted a further 13 interns across our operations in China within our Sales, IT, HR and Global Services departments and three in India.

In the UK, 2019 saw the departure of three placement students, all of whom were offered sponsorship in support of their final academic year at university.

A new cohort of four further placement students joined us in September 2019 in Support Services, Product Verification, Hardware and Software. We were also delighted to attract two female students into those placements. All four have been offered sponsorship for their final year at university and we hope to welcome them back at the end of their respective studies.
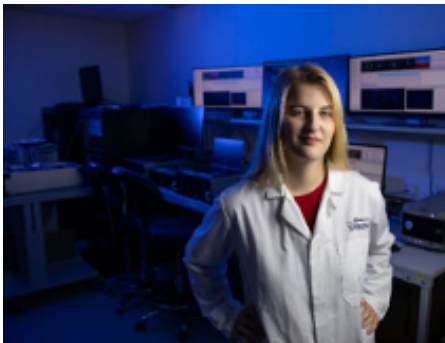
Lucy Barron, Hardware Placement Student
BEng Robotics Engineering at Plymouth University

"As well as the practical skills obtained, I have developed skills in areas that I had not previously considered before my placement. This includes becoming more familiar with engineering terminology as opposed to the concepts alone, how to work together with other departments to keep projects moving and varying communication styles depending on the expertise and required knowledge of individuals you're talking to."

Adam Sutton, Product Verification & Test Placement Student
BEng Electronics and Electrical Engineering at Plymouth University

"I chose Spirent as it was an impressive multinational business that focused on the interesting topic of GNSS. The business is at the forefront of development in a highly specialist area and I knew that there would be lots to learn in any role in the Company.

I have had an amazing time at Spirent. The technical knowledge I have picked up related to GNSS has been substantial and every day it feels like there is more to learn."

Graduates and apprentices

In 2019, three graduates joined Spirent in full-time roles after completing internships and industrial placements with us. We welcomed one Graduate Firmware Engineer to the team in the UK, who returned following an earlier placement. An intern joined our team in India as an Associate Engineer on completion of their placement, and a further graduate joined us in the US following their internship.

We also welcomed an IT Operations Apprentice to our team in the UK.

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STEM

As a technology business, we are passionate about science and engineering, but we recognise that there are barriers that prevent talented young people from studying STEM subjects and pursuing careers in technology.

These challenges have led to decreasing interest in Science, Technology, Engineering and Mathematics (STEM) subjects amongst young people and a lack of gender diversity, especially in technical roles.

Our STEM Ambassador programme was developed to engage with young people and help foster an interest in STEM subjects that we hope will lead them to fulfilling careers in science and engineering.

Spirent's STEM Ambassador programme

In 2019 we expanded our award-winning STEM programme to all our sites globally. We now have 57 STEM Ambassadors across 7 countries working on projects that are important to them and their community.

Paignton, UK: STEM showcase at the UK's biggest science fair, The Big Bang

Seven members of the STEM team from Paignton ran an interactive stand on satellite navigation at The Big Bang 2019, the UK's largest science fair.

James Pollard, Charlotte Perry, Rob Hirst, Chrissie Hillyer, Karen Hare, Todor Trionski and Kimon Voutsis hosted the booth at the event which aims to introduce students aged 10 to 18 to STEM subjects and careers.

Berlin, Germany: programming and robots for primary school students

One of our engineering managers in Berlin, Bogdan Stanca-Kaposta, runs a weekly workshop for over 30 primary school students on programming and robotics.

The workshops include building mini robots and learning some basic programming, and working in teams of two, the children's robots take part in maze and football competitions. The classes also introduce the science of light and radio waves.

Bangalore, India: Spirent STEM day for underprivileged students

In January 2020, seven STEM Ambassadors from Spirent's Engineering team in Bangalore ran a STEM experience day for 100 underprivileged students.

The event provided the students with an introduction to STEM careers, an opportunity to ask questions and some quizzes, and each student was given a goody bag.

Raleigh, NC: supporting primary school student science fair

Eric Lesser, one of our STEM Ambassadors from Raleigh, NC, has been working with his local primary school to support its science programme. Spirent donated four Sphero robots for the school's Imagineering class and hosted the Spirent Robotics Programming event at the school's STEM night for more than 40 KS3 and KS4 students and their families.

Paignton, UK: supporting inspiring young women from Krygyzstan to build the country's first satellite

Two STEM Ambassadors from our Satellite and Positioning business in Paignton, UK, have been supporting Kyrgyzstan's all-female team to develop the country's first satellite.

Engineer Talini Pinto Jayawardena (our KTP associate from the University of Bath) and Chrissie Hillyer from our Marketing team met up with three of the young women, aged between 17 and 25, at the University of Bath. They plan to provide ongoing mentoring and financial support to the team, nicknamed The Satellite Girls.

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COMMUNITY INVESTMENT

What's next?

To date our STEM programme has attracted employees with an interest in supporting students from primary education, through to college level. The activities have been fun and engaging and really wide ranging. We will continue to support these projects in 2020 and hope to expand the number of Ambassadors and activities.

In addition, we will also develop a programme with a stronger focus on university students (bachelor, master's and PhD students) and align our work with our Knowledge Transfer Partnerships and project-based relationships with students globally.

Volunteering and charitable giving

Spirent is committed to investing in the communities that we work in. Many of our staff use their time and skills and to support good causes, as well as making financial contributions.

Our Company Volunteering and Charitable Giving programme is designed to support our staff to support our local communities and to extend the support for good causes.

In 2019 we expanded our Volunteer Time Off (VTO) and Charitable Giving programmes. We introduced VTO to our APAC region for the first time, and introduced a new matched-funding initiative to provide a boost to the charitable donations made by staff.

In 2019 our staff completed more than 710 hours of volunteering and donated in excess of £31,000 to good causes.

Donations (USD)	Company-matched donations (USD)	VTO (hours)
31,325	9,898	713

CASE STUDY: COMMUNITY INVESTMENT

Making a positive contribution to our communities

A team from Spirent's Paignton office kept up its record of participation in one of the South West of England's most arduous sporting events – the City-to-Sea Marathon – while helping a worthy local cause.

The team was again raising funds for the Torbay Holiday Helpers Network (THHN) charity, which provides much-needed vacations to families who have seriously ill children, families who are recently bereaved having lost a child or parent, and families who have a terminally ill parent. The picturesque 26.6-mile (42.8km) course started in the city of Exeter in South West England, before winding its way along the Devonshire county coastline to the clifftop promenade finish at Babbacombe Downs.

Aided by the beautiful surroundings, the runners were lulled into a false sense of security by the opening 20 miles of relatively flat terrain, but the final 6.58 miles concluded the race with a gruelling ascent of 2,556 feet to reach the finish line.

"The City-to-Sea Marathon is an event particularly close to our hearts," said Senior IT Operations Specialist Paul Duffield. "We've had participants and volunteers take part in the event every year, and this year was a particularly good turnout."

Paul continued: "The team did Spirent proud, and special thanks should also go to Manufacturing Team Leader Mark Stockman, who, as well as providing support and manning a vital food station checkpoint on the day, also ran the extended 34-mile course the following weekend to collect course marking signage and any other race paraphernalia that had been left behind. It was a Herculean effort."

With Spirent matching donations up the value of £200 per participant, the marathon team was able to raise a fantastic £4,600 for THHN to help the charity carry on its terrific work.

Community investment continued

Performance against 2019 targets

Area of focus	Objective	Target
Skills and training	Provide staff with support, training and mentoring to enhance their technical and non-technical skills	Deliver Spirent's "Leader. Assured." programme for selected high-potential participants **Completed** Create documented individual development plans for successors identified for leadership and critical roles **Completed** Launch new performance and development assessment software platform **Completed**
STEM	Enhance and embed the Spirent Global STEM network: STEMnet	Undertake quarterly workshops for our internal STEM Ambassadors **Completed. Instead of workshops, we have completed one-to-ones with STEM Ambassadors globally** Each region will complete at least two STEM activities **Completed** Each region will complete at least 1 "Women in STEM" activity **Completed**
Community investment	Expand our community support through staff volunteering and charitable donations	Increase participation in the VTO programme, with at least 20 per cent of staff globally taking part in the programme in 2019 and 40 per cent in 2020 **Not achieved. 5 per cent of staff took part in the VTO programme in 2019**

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Plan for 2020

Area of focus	Objective	Target
Skills and training	Support leadership development and share knowledge across the business	Run the mentoring programme with workshops and external coaches and personal leadership training
		Kick off two new initiatives: the CEO challenge and Action Learning Groups to put concepts covered in leadership courses into action
	Expand our knowledge partnerships with more universities	Establish six new Knowledge Transfer Partnerships with universities globally
STEM	Expand our work to engage young people in STEM and develop a more focused programme to create a structured talent pipeline	Attract 25–30 new STEM Ambassadors to the programme
		Join the LikeToBe initiative, which helps students to explore careers, engage with potential employers and build their employability skills
		We will introduce new initiatives to support a talent pipeline to recruit talented graduates and young people into the business
Community investment	Expand our community support through staff volunteering and charitable donations	Increase participation in the VTO programme, with at least 40 per cent of staff globally taking part in the programme in 2020

PROPERTY

"Our Property programme continued its focus on energy efficiency and carbon reductions in 2019.

"Our lab energy efficiency delivered significant reductions once again and we reduced our carbon emissions for the fifth year in a row. I'm really pleased that we also managed to source 90 per cent of our electricity from renewable sources this year to build on our efficiency initiatives."

Ray Lee
Director of Global Properties
FuturePositive Property Lead

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Priorities

The FuturePositive Property programme focuses on three themes:

- **Resource efficiency:** We aim to minimise the energy, materials and water used within our operations

- **Renewable energy:** We aim to maximise our use of renewable energy

- **Climate change:** We aim to minimise our contribution to climate change and manage the impacts, risks and opportunities that will affect our business and supply chain

2019 highlights

- We sourced 90 per cent of our electricity from renewable sources in 2019

- We reduced our emissions by 5.5 per cent this year, bringing the 5-year total reduction to 29 per cent

- We expanded our scope 3 emissions reporting to include air travel emissions

Our properties

Spirent operates from 36 sites across 13 countries. The Group headquarters is in Crawley, UK, and we have 11 significant engineering sites across the world which house development and customer service labs. We also have other smaller sales and administrative offices across the world.

All product manufacturing is completed by contract manufacturers and only limited production processes such as quality testing, loading firmware and product repairs are completed on our sites.

In 2019, we opened a new sales office in Finland and reduced the size of our sites in Honolulu, HI, and San Jose, CA. The Group's total floor area increased by around 3 per cent.

Frederick, MD

Holmdel, NJ

San Jose, CA

Eatontown, NJ

Paignton, UK

Beijing, China

Crawley, UK

Raleigh, NC

Calabasas, CA

Plano, TX

Honolulu, HI

Bangalore, India
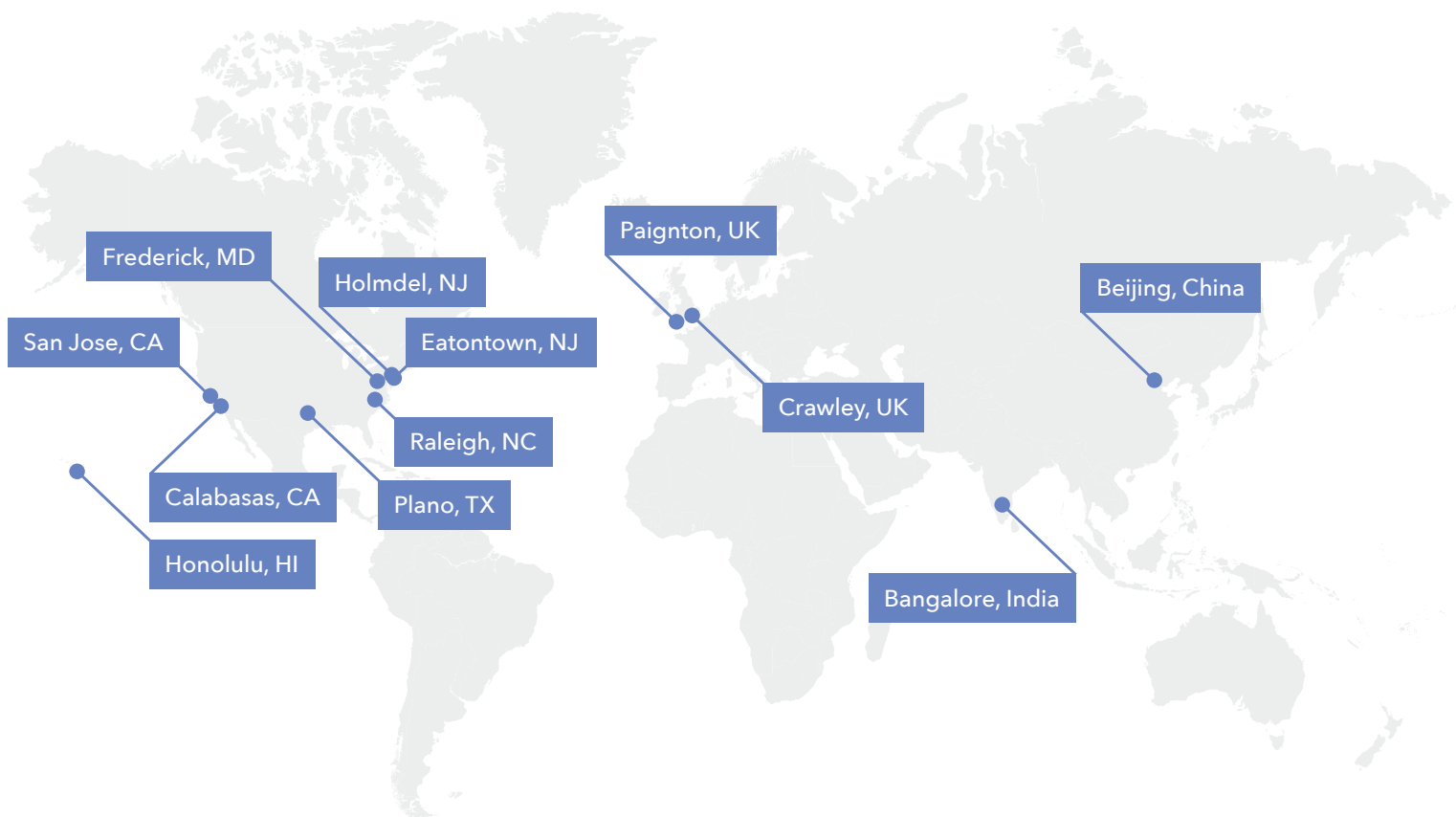
Our sustainable property approach

Our sustainable property programme is focused on resource efficiency, renewable energy and climate change.

01: Resource efficiency

Investing in technology and practices that improve resource efficiency in our labs and offices

02: Renewable energy

Sourcing energy from renewables

03: Climate change and GHG emissions

Measuring and reducing our carbon emissions

01

RESOURCE EFFICIENCY

Our main focus on resource efficiency in on energy in our labs.

Lab and site energy management

Our labs are the largest energy user within our operations and, as such, are the main focus of our energy efficiency initiatives.

Our lab in Calabasas is the largest in the Group, and we have invested in making it as energy efficient as possible, installing hot-isle containment and in-row cooling, and monitoring energy use in each rack. Our lab manager actively manages the equipment and systems to ensure they remain lean and efficient.

We have been rolling out audits and efficiency initiatives across our largest labs, which have delivered significant savings. In Frederick, we reduced energy use by nearly 50 per cent through efficiency initiatives in 2019.

We have invested in an energy efficient cooling system for our lab in Calabasas, California

Lab equipment virtualisation and test automation

We have been able to remove under-utilised equipment and draw on Spirent automation solutions like Velocity and iTest to reduce the equipment in the labs by improving utilisation rates. We also use these products to help our customers improve the efficiency of their labs, which has led to carbon savings of more than 60 per cent in some cases.

Site recognition

We introduced a new site energy and carbon league table in 2019, providing staff with details on energy use and trends at their site and how they compare to other sites.

02

RENEWABLE ENERGY

Where we can, we aim to generate renewable energy on site. We have a 50kWp solar array at our site in Paignton; however, as all our other sites are leased, our opportunities for on-site renewables are limited.

We aim to purchase renewable energy through our electricity contracts or through market instruments where this is not possible.

What's next?

In 2020, we will source 100 per cent of our electricity from renewable sources and are working on a long-term carbon neutral target to ensure that we play our part in the global climate challenge.

03

CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

Resource efficiency

Energy

Energy use across the Company where we are directly responsible decreased by around 2.5 per cent in 2019 to 14,187 MWh (2018 14,528 MWh). This reduction is predominantly due to electricity reductions, including Frederick (48 per cent reduction), following a detailed lab review.

We estimate electricity use for sites where we do not pay for energy directly but instead pay indirectly through a service charge.

The energy intensity of our operations has also reduced, measured in MWh per $ million of revenue: 10 per cent since 2018 and 27 per cent over five years.

	2014	2015	2016	2017	2018	2019
Electricity (actual) (MWh)	12,995	14,341	13,965	13,476	13,782	13,120
Electricity (est.) (MWh)	3,118	1,051	1,322	978	351	269
Gas (MWh)	1,433	1,388	757	546	745	798
Total (MWh)	**17,547**	**16,781**	**16,044**	**15,001**	**14,879**	**14,187**
Energy intensity (MWh per $ million)	38.4	35.2	35.0	33.0	31.2	28.2

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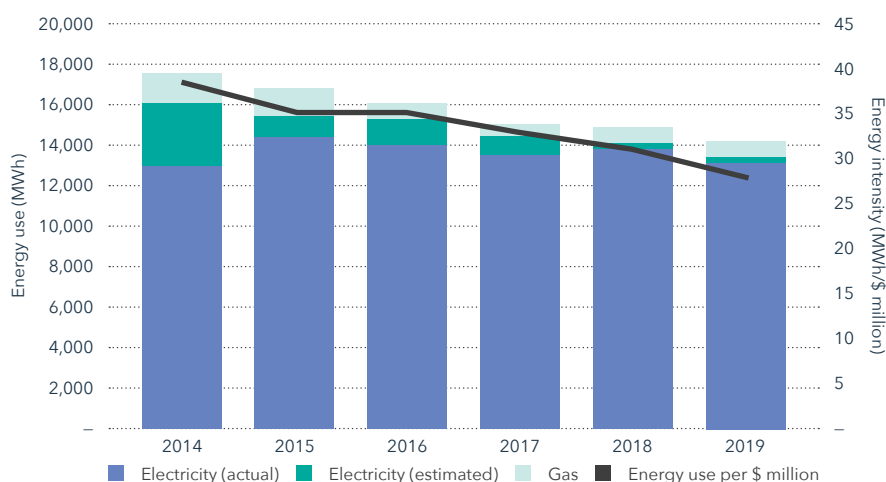
Some sites increased energy usage, principally due to increased operational activity. Energy consumption at the Paris office increased by 208 per cent and Holmdel increased by 36 per cent.

Main energy-using sites

The largest energy-using sites in 2019 were:

	Internal area (m²)	Energy use 2018 (MWh)	Energy use 2019 (MWh)	Change
Calabasas	7,789	4,379,155	4,349,876	-1%
San Jose	4,859	1,685,896	1,817,955	8%
Plano	2,370	1,307,797	1,419,401	9%
Eatontown	5,017	1,395,928	1,379,238	-1%
Frederick	4,470	2,375,471	1,228,072	-48%
Beijing 1 (a)	2,896	1,069,233	989,534	-7%
Paignton (Aspen Way)	2,575	597,433	618,521	4%
Honolulu	1,295	376,759	377,035	<1%
Holmdel	2,210	251,354	342,568	36%
Paris	585	94,356	290,743	208%

Water

Our water use is minimal and is limited to showers, toilets and washing crockery at coffee points. We recognise that a number of our sites are located in water stressed areas and water stress is likely to increase globally with climate change. As a result, we have a policy to reduce water use across our sites and water efficiency measures are installed as standard in our property design guide. For example, we have installed low flow taps and waterless urinals at our office in Paignton, UK.

Renewable energy

Moving away from fossil fuels is vital to reduce global emissions and in 2019, we set a target to source 90 per cent of our electricity from renewable sources by the end of the year.

In 2013 we installed a 50kWp solar array at our site in Paignton which generates 35 MWh of zero-carbon electricity each year. This supplies around 10 per cent of our electricity use at the site, equivalent to around 10 homes.

Paignton, however, is the only site we own. All other global sites are leased, which has made installing renewables at other sites quite difficult. We have zero-carbon electricity contracts in place for our Paignton and Berlin sites, and low-carbon tariffs in place at our Crawley and Paris offices.

Many of our sites also do not have access to zero-carbon electricity tariffs, so we have partnered with Natural Capital Partners to source renewable Energy Attribute Certificates which has allowed us to achieve our 90 per cent renewable electricity target.

"In 2019, 90 per cent of our electricity came from renewable sources."

Climate change and greenhouse gas emissions continued

GHG emissions

Greenhouse gas emissions are a material issue for Spirent, and we are committed to reporting emissions and acting to combat climate change. The Group once again reported to the Carbon Disclosure Project in 2019, completing the Climate Change and Supply Chain questionnaire. In 2019 we achieved a rating of B (2018 C) and a rating of B in Supplier Engagement.

This year, we are reporting our emissions on a location and contract basis for the first time. We have previously only reported our emissions using the location-based method, and our reduction targets for the past few years have been set using this approach. The contract approach takes into account purchased renewable energy and so will be important as we work towards achieving carbon neutrality. For transparency, we shall continue to disclose both approaches in future reports.

Emissions from:	Location based		Contract based	
	2018 Tonnes of CO²e	2019 Tonnes of CO_2e	2018 Tonnes of CO_2e	2019 Tonnes of CO_2e
Combustion of fuel and operation of facilities (scope 1)	137.2	144.7	137.2	144.7
Electricity, heat, steam and cooling purchased for own use (scope 2)	4,950.4	4,641.0	4,604.0	452.7
Total emissions	5,087.6	4,785.7	4,741.2	597.4
Emissions intensity metrics:				
Per square metre of gross internal area of our facilities	0.112	3.46	3.32	0.43
Normalised per $ million of revenues	10.67	9.50	9.94	1.19

We have reduced our scope 1 and 2 (location-based) carbon emissions by 29 per cent since 2014

Scope 1   Scope 2   Emissions per $ million
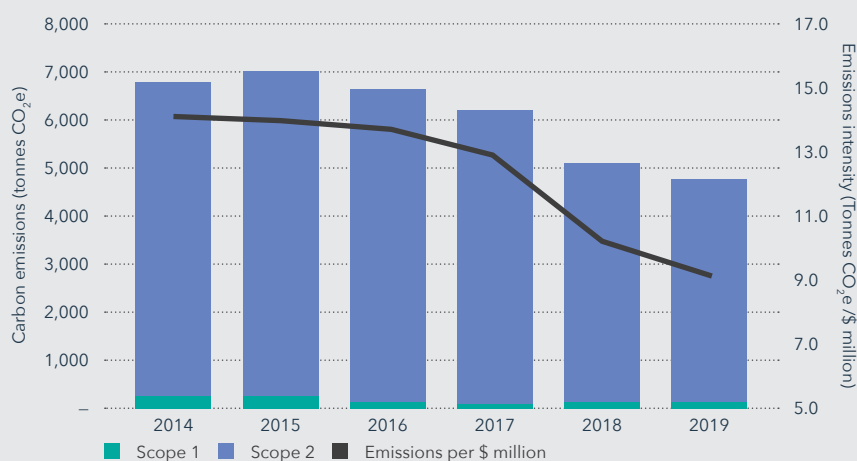
Location-based emissions

To date, our targets have been set on location-based emissions.

In 2019, total Group location-based emissions decreased by about 6 per cent from 2018 to 4,786 tonnes of CO_2e.

Since 2014 we have reduced our location-based carbon emissions by 29 per cent and have made year-on-year reductions in carbon emissions in relation to revenue as well. Emissions intensity (tonnes CO_2 per $ million) is down 36 per cent since 2014 and 11 per cent down on 2018 figures.

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Our contract-based emissions reduced by 87 per cent in 2019
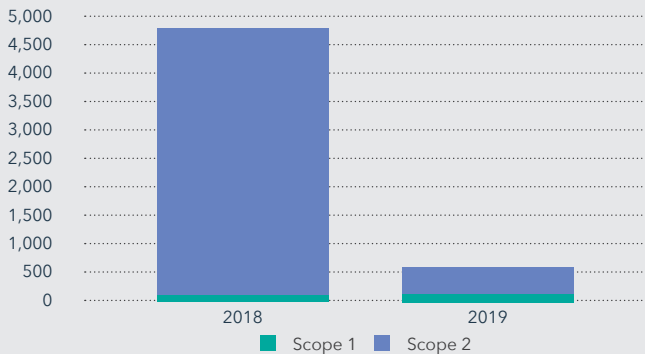
Contract-based emissions

For the first time, this year we have reported emissions on a contract basis. 2018 emissions are slightly lower than the location-based approach, reflecting the low- and zero-carbon tariffs in place across our European sites.

Our 2019 emissions are significantly lower than 2018, due to our sourcing 90 per cent of our electricity in each region from renewable electricity.

Scope 3 emissions

We have expanded our scope 3 emissions reporting this year to include business air travel as well as those from contract manufacturers. Scope 3 emissions include those emissions that Spirent is not directly in control of, including raw materials, manufacturing, logistics, business travel and commuting, as well as emissions associated with our products during use and at the end of their life. We are working to expand our scope 3 emissions reporting in order to get a more complete understanding of the emissions associated with the full lifecycle of our products and services.

Carbon emissions from air travel are significantly greater than our scope 1 and 2 emissions, and more than emissions associated with contract manufacturing.

Emissions from:	2018 Tonnes of CO_2e	2019 Tonnes of CO_2e
Contract manufacturing	1,883	1,539
Air travel	–	8,547

Contract manufacturing

Our emissions from manufacturing reduced by 18 per cent in 2019, primarily driven by energy efficiency improvements and renewable energy generation from our largest manufacturing partner.

Air travel

In 2019, we took more the 15,000 flights and travelled 41 million km by air, contributing nearly 60 per cent of our total emissions within scopes 1,2 and 3 (location based), and 80 per of our total contract-based emissions.

Total carbon emissions breakdown

Two thirds of our carbon emissions in 2019 came from air travel and contract manufacturing. Gas use makes up only 1 per cent, with electricity emissions responsible for 30 per cent.

When looking at emissions on a contract basis, which takes into account our purchased renewable energy, our total scope 1 and 2 emissions make up only 5 per cent of our total reported emissions in 2019.

Breakdown of total carbon emissions (location based)

- Gas
- Electricity
- Air travel
- Contract Manufacturing
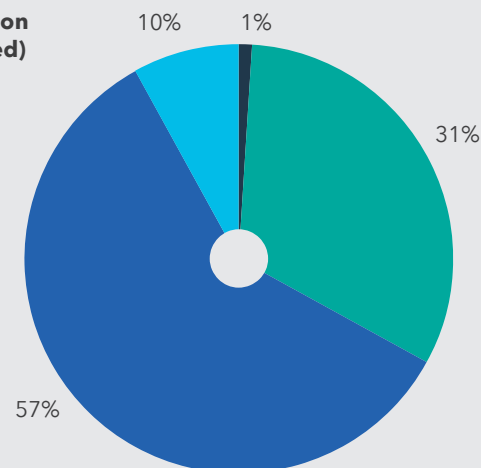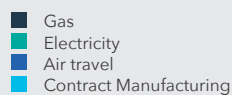
Climate change and greenhouse gas emissions continued

Setting science-based targets

We have reviewed the Company's options to set a science-based carbon reduction target for 2025. Based on a 2017 baseline, targets in line with guidance for 2 degree and 1.5 degree scenarios would be 20 per cent and 33.6 per cent respectively.

Whilst we are confident in our approach and methodology for reducing scope 1 and 2 emissions, a significant proportion of our carbon emissions occur in the supply chain and during the use of our products. Whilst we have made further progress in understanding our scope 3 emissions this year, in order to achieve a robust science-based target, further work is required to calculate our full scope 3 emissions robustly.

We are not in a position to set a science-based target at this point but will continue to review our ability to do so.

Performance against 2019 targets

Area of focus	Objective	Target
Carbon emissions	Set science-based target	Set science-based targets for 2025 **In progress**
		Interim target: reduce carbon emissions per $ million revenue by 5 per cent from 2018 levels **Achieved: we reduced our emissions per $ million revenue by 10.9 per cent**
		Explore options to purchase emissions offsets **In progress**
Renewable energy	Purchase electricity from renewable sources	Purchase at least 90 per cent of electricity from renewable sources **Achieved: we sourced 90 per cent from renewable sources using zero-carbon energy contracts and Energy Attribute Certificates**
Emissions reporting	Improve our carbon emissions reporting	Report emissions using contract methodology as well as location-based methodology **Achieved**
Internal reporting and recognition	Implement a scheme to reward and recognise energy reduction efforts at the site and individual level	Establish a programme to reward energy performance at the site level and provide recognition for individuals who have been instrumental in reducing energy use **In progress: new internal site energy reports and league tables have been developed, but whilst we offer financial incentives for employees who contribute, the framework to systematically recognise individual contributions has not yet been established**
Energy reduction	Reduce energy use in our engineering labs	Expand the lab virtualisation and consolidation programme **On track: virtualisation and automation tools have been implemented at the PVT lab in Paignton and in the lab at San Jose. The ENG lab in Paignton and the labs in Beijing and Seoul are scheduled for 2020**

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Plan for 2020

Area of focus	Objective	Target
Carbon emissions	Set science-based target	Set science-based targets for 2025
		Interim target: reduce carbon emissions per $ million revenue by 5 per cent from 2019 levels
		Explore options to purchase emissions offsets
Renewable energy	Purchase electricity from renewable sources	Purchase 100 per cent of electricity from renewable sources
Internal reporting and recognition	Implement a scheme to reward and recognise energy reduction efforts at the site and individual level	Establish a programme to provide recognition for individuals who have been instrumental in reducing energy use
Energy reduction	Reduce energy use in our engineering labs	Implement lab virtualisation and automation tools into the ENG lab in Paignton and the labs in Beijing and Seoul

SUSTAINABIL MANAGEMEI AND GOVERI

"We have robust structures in place to manage sustainability issues, including a mature and effective corporate governance structure. We have strong leadership from Board level down, with policies and resources in place to manage sustainability issues effectively.

"This approach ensures compliance and that we follow good practice. It protects our reputation and ability to grow, and helps us build strong relationships with our stakeholders and improves our understanding of their needs and expectations. It also provides a platform to assess and manage significant sustainability risks and opportunities."

Angus Iveson
Company Secretary and General Counsel
FuturePositive Committee Chair

Priorities

- **Sustainability governance:** An effective governance structure for environmental and social issues

- **Materiality:** Identifying the most important environmental, social and corporate governance issues for Spirent to manage

- **Stakeholder engagement:** Understanding and responding to the needs and expectations of our most important stakeholders

- **Risk management:** Understanding and managing the principal sustainability risks for Spirent

- **Compliance:** Ensuring we comply with all application legislation and policies

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Sustainability management and governance

Spirent has a robust approach to managing environment and social issues. There are five key areas to our responsible operating approach.

01: Sustainability management

An effective governance structure for environmental and social issues

02: Materiality

Identifying the most important environmental, social and corporate governance issues for Spirent to manage

03: Stakeholder engagement

Understanding and responding to the needs and expectations of our most important stakeholders

04: Risk management

Understanding and managing the principal sustainability risks for Spirent

05: Responsible business practice

Ensuring we comply with all applicable legislation and policies

01

SUSTAINABILITY MANAGEMENT

Governance structure
The CEO is ultimately responsible for sustainability at Spirent and oversees how we manage our material environmental, social and governance (ESG) issues. A Committee for the FuturePositive programme was established in 2016 comprising Senior Management representatives who have responsibility for each aspect of the strategy.

The FuturePositive Committee comprises:

Committee Chair	Company Secretary and General Counsel
Procurement	Vice-President Global Operations
	Global Procurement Director
Property	Director of Global Properties
People	Global Human Resources Director
Product	Senior Director Research and Development Product Development

External advisers have been appointed (Brite Green) to support the Committee in designing and implementing the FuturePositive programme and members of staff from across the business contribute to the Committee and annual workstreams.

The FuturePositive Committee meets four times a year to co-ordinate and monitor progress on the programme. The Committee is chaired by the Company Secretary who reports progress to the Board.

Policies
Our sustainability approach is governed by an overarching Sustainability Policy. It can be found at https://corporate.spirent.com

The Policy applies to the Company and all subsidiaries worldwide and commits the Group to compliance with high standards of ethics and business integrity, environmental management, and employee and community welfare.

The sustainability strategy is supported by specific policies and programmes related to management of environmental, social and governance issues.

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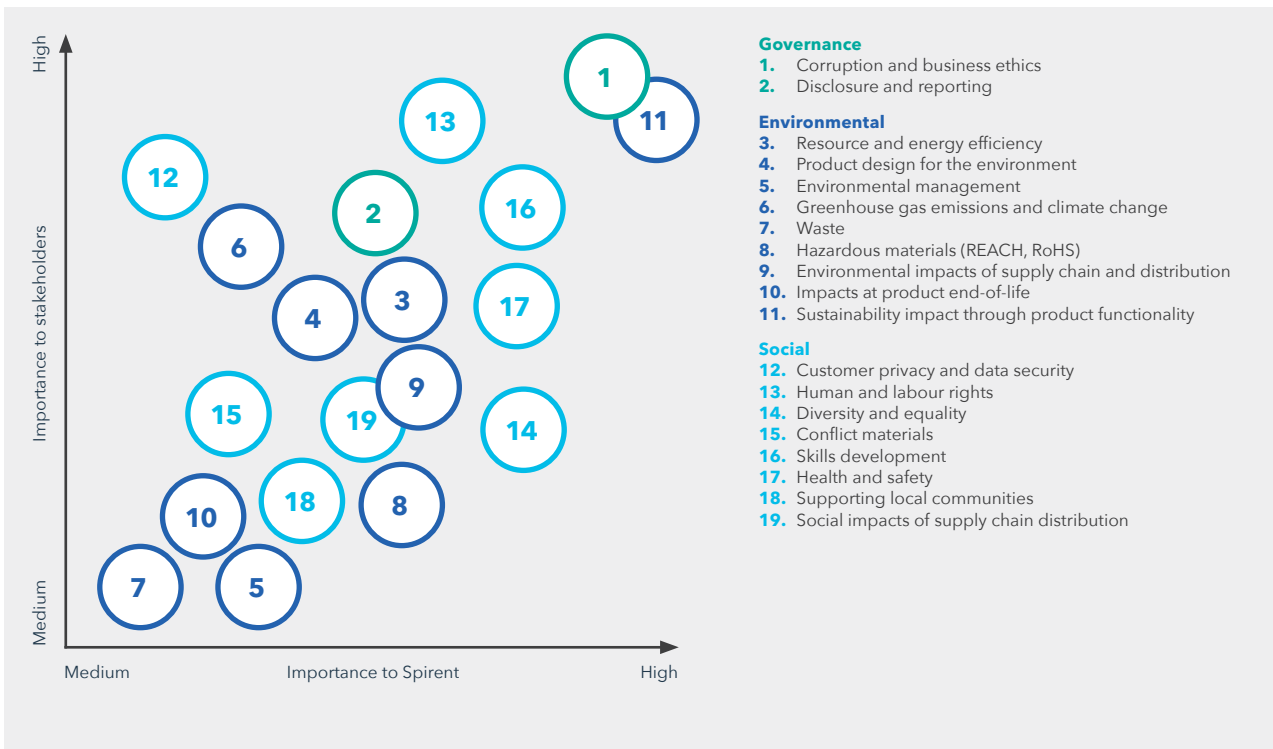
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02

MATERIALITY

In 2018 we re-examined the sustainability issues that are material to Spirent using the five criteria set out in the AA 1000 standard:

- direct financial impacts;
- policy related performance;
- peer-based norms;
- stakeholder behaviour and concerns; and
- social norms (including legislation).

We conducted desk-based research, direct correspondence and interviews with stakeholder groups to identify the themes that are most important to the business.

The results from the review reinforced our focus on business ethics, human capital development and data security, along with how our products can help our customers deliver sustainability performance improvements.

The analysis is undertaken at least every two years and will next be updated in 2020.

Governance
1. Corruption and business ethics
2. Disclosure and reporting

Environmental
3. Resource and energy efficiency
4. Product design for the environment
5. Environmental management
6. Greenhouse gas emissions and climate change
7. Waste
8. Hazardous materials (REACH, RoHS)
9. Environmental impacts of supply chain and distribution
10. Impacts at product end-of-life
11. Sustainability impact through product functionality

Social
12. Customer privacy and data security
13. Human and labour rights
14. Diversity and equality
15. Conflict materials
16. Skills development
17. Health and safety
18. Supporting local communities
19. Social impacts of supply chain distribution

Materiality continued

Sustainability issues are relevant to our operations and across our sector. We have incorporated actions to address significant risks and opportunities into the way we operate.

Some issues are addressed at the Group level (e.g. climate change, learning and development, STEM programmes), whilst others are undertaken at the site level (e.g. community support initiatives).

We have set out how our material sustainability issues apply to our core business activities.

Our business activities	How our material sustainability issues apply
Our test solutions	
We provide network test solutions to customers across the world. Our test solutions are used in research and development and operational monitoring of communications networks across a wide range of use cases. Our world-class equipment is often used for a long time by customers.	The use of our equipment and test solutions has a direct environmental impact across their lifecycle. Our hardware uses raw materials and energy to manufacture and transport. The equipment also consumes energy and is responsible for associated carbon emissions during its use. Our equipment will also become electronic waste at the end of its life. Our efforts are focused on controlling and reducing the negative impact in the supply chain and designing efficient and long-lasting products that can be recycled at the end of their life. Our test solutions are used to develop emerging technologies that will help address global sustainability challenges, including electric and automated cars, cybersecurity and the Internet of Things (IoT). We are also able to help clients improve their sustainability performance through our product functionality. With the continued growth of data demand globally, we are developing solutions to improve the efficiency and effectiveness of communications networks and labs. This includes allowing customers to operate effectively and efficiently in the cloud, increasing R&D lab efficiency, reducing service engineer call-outs for telecoms operators, and keeping networks and data safe from cyber-attacks.
Our business activities	
Our operations include hardware and software design, testing, and research and development. We have in-house Finance, HR and IT, and Procurement functions as well as an in-house Sales and Marketing team. In some cases, we also work with third-party sales partners.	We influence the environmental performance of our products through our design process. We aim to reduce the physical impacts of hardware, employing Design for Environment principles, virtualising hardware and using software where possible. Business ethics is a key issue, especially for those in sales, finance and HR. Those staff in higher-risk roles are given regular anti-corruption and bribery training and the business ethics practices of our third-party sales partners are assessed prior to and during the appointment. As an office-based business, the work that our staff conduct is predominantly low risk from a health and safety perspective.

Our business activities	How our material sustainability issues apply
Manufacturing, logistics and components	
We do not carry out any manufacturing activities ourselves but instead leverage the expertise and scale of specialist manufacturing partners. Similarly, logistics are also completed by third parties. We have a global supply chain and our products contain materials which are subject to regulation due to the environmental and social impacts connected to their extraction, processing and transport.	As we do not conduct manufacturing directly, the environmental and social impacts related to component and product manufacturing arise in our supply chain. The electronic industry as a whole faces challenges, including environmental impacts from raw material extraction and processing, labour and human rights, and transparency. As such, we set high environmental, social and governance standards for all suppliers and conduct regular assessments and audits. We are expanding our environmental monitoring of key suppliers through our scope 3 emissions reporting. We maintain very close control of the components and suppliers used to ensure only compliant components are used from suppliers which meet our standards. All products are manufactured to our exacting specifications and records are maintained. Where possible, we reduce the environmental impacts from logistics by shipping hardware directly to customers and allow customers to expand the capability of equipment in situ with product key upgrades. We are also expanding our software-based and Test-as-a-Service (TAAS) solution portfolio which will further reduce environmental impacts.
Product use and end-of-life	
Predominantly the customer use and end-of-life stages of our products' lifecycles have been outside of our direct influence, but our suite of hosted test services is increasing.	During use, our products use energy, occupy space and contribute to the heat load in clients' labs. Our hardware also uses cooling fans which generate noise which can be problematic for desktop use. As such energy efficiency, noise and size are key considerations for our products during use, and we have processes in place to improve the performance of our products in these areas. We have also developed products that maximise equipment utilisation and test automation for clients to reduce in-use impacts even further (Velocity and iTest). With more of our test services being hosted by Spirent, we are also responsible for ongoing energy consumption. Our products are designed for disassembly at end-of-life and are subject to waste electronics regulations.

Materiality continued

Our business activities	How our material sustainability issues apply
Confidential and personal data	
By the nature of the work we do, we hold commercially sensitive data and personal information related to our own business and our customers.	We process personal data and commercially sensitive information which we need to keep secure.
	As a result, we operate robust information security procedures and our SecurityLabs business achieved certification to ISO 27001 in 2018.
	Cybersecurity is also critical for our customers and we have developed industry-leading security and performance solutions to help them manage cybersecurity risks.
Stakeholders	
We work with national governments and some of the world's largest companies and we are listed on the Main Market of the London Stock Exchange.	We are expected to demonstrate good management of environmental, social and governance and report on our performance.
As a result, our clients, investors and other stakeholders have high expectations of our environmental, social and governance management and ask us to disclose detailed information about how sustainability issues are relevant to our business and how we are managing them.	We respond to customer questionnaires and participate in industry-wide initiatives (such as CDP).
We also recognise that we operate within communities and we have an obligation to ensure that we operate responsibly and create a positive impact.	We aim to create a positive impact on the communities we work in through volunteering and charitable donations and introduced a new Company-wide programme in 2018 to ensure we do this consistently and effectively.
Our facilities	
We operate from 36 sites across the world. With the exception of our site in Paignton, UK, all our sites are leased. Around a third of these sites have an engineering lab or significant customer lab. The rest are sales or administrative offices.	The most important impact we have through our facilities is energy use; however, we have limited control over much of the infrastructure in the leased buildings we operate from. The main areas of influence are the engineering labs and our site in Paignton, UK, where we own the building.
	We only use water on our sites for domestic use.
Talent	
We operate in a sector with high competition for talent and in some areas, there are sector-wide challenges with diversity and interest in science and technology jobs. Our employees require a high level of education and technical knowledge.	Our business relies heavily on human capital. Attracting, retaining and developing world-class talent is critical for our success. We also need to engage talented young people to encourage them into careers in science and technology, and contribute to the curriculum in schools and universities.

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REPORTING AND STAKEHOLDER ENGAGEMENT

Non-financial reporting

We aim to give stakeholders visibility of the non-financial risks and opportunities we face and how they are being managed. We do so principally through this Sustainability Report but we also participate in the Carbon Disclosure Project (CDP), complete customer sustainability questionnaires, respond to environmental, social and governance (ESG) rating agency assessments, and disclose information in the corporate responsibility section of our Annual Report.

Assurance

Our Sustainability Policy sets out our commitment to robust and transparent reporting and external assurance of data and claims is a key component. We obtain external assurance of our Sustainability Reports to ensure the data and statements we make are reliable and robust.

Stakeholder engagement

We respond to stakeholder sustainability requests and questionnaires and have started a process to actively engage with customers and suppliers on sustainability issues.

In 2019 we responded to all requests for information from customers relating to our management of environmental, social and governance issues. Greenhouse gas emissions and diversity are of interest to some customers. In response, we have completed the CDP supply chain questionnaire and disclosed key diversity data.

Our investors have engaged with us directly on climate change through

the CDP, and we have also received and responded to questions relating to our disclosure and emissions performance from individual investors and from ESG rating agencies.

We have initiated closer collaboration with our contract manufacturers to improve our understanding of sustainability management and performance in our tier 2 suppliers. In particular we share information about supplier audits and performance.

In addition, we engage with our employees on sustainability issues in our regular "town

hall" meetings and employee surveys. We continue to communicate with our employees on sustainability topics via emails, posters and the Company intranet, InsideSpirent. In 2019, we partnered with Emplify to conduct two employee engagement surveys. The survey reviews 17 key themes including meaning, purpose, professional development, shared values, leadership and autonomy. We will complete the surveys every six months and they have shown high levels of staff engagement and improvement in each area. The survey has also identified a number of areas where we perform especially well, including fairness

Who? Stakeholder group	Why? Why is it important to engage?
Investors The major interests in our shares are set out on page 103 of our Annual Report 2019. **Key metrics:** • Earnings per share • Total dividends paid • Total shareholder return (TSR)	Continued access to capital is of vital importance to the long-term success of our business. Through our engagement activities, we seek to obtain investor support for our strategic objectives and our approach to executing them. We create value for our shareholders by generating strong and sustainable results that translate into dividends. We are seeking to promote an investor base that is interested in a long-term holding in the Company.
Workforce We define workforce as full-time and part-time permanent employees. **Key metrics:** • Total benefits and payments to employees • Employee turnover rate	The Company's long-term success is fundamentally linked to the commitment of our workforce to our purpose and its demonstration of our values on a daily basis. We engage with our workforce to ensure that we are fostering an environment that they are happy to work in and that best supports their wellbeing. We invest significantly in our workforce as we believe that maintaining low turnover rates across the entire workforce is the source of our industry-leading efficiency and productivity rates.

and staff feedback, and some areas for improvement, including around taking holiday and goal support.

Stakeholder expectations
As part of our materiality analysis we have identified the needs and expectations of six main stakeholder groups: investors, workforce, customers, suppliers, government/regulatory bodies, and community and environment.

The groups were identified as having the largest influence on our business or where we can have a significant impact. The key

issues raised are incorporated into our sustainability strategy development and we have introduced programmes to address all key issues raised by stakeholders.

Where possible, we have incorporated the consideration of sustainability issues into existing stakeholder engagement processes and as such, the frequency of engagement ranges from continuous to annually.

We have designed this report to address the key themes raised by our stakeholders and we also respond to specific requests for information from stakeholders.

| How?
Ways Spirent engages | What?
Key topics of engagement and feedback and input received | Outcomes and actions
Impact of engagement and any actions taken |
|---|---|---|
| The key mechanisms of engagement include:

• Annual General Meetings;
• investor presentations; and
• one-to-one meetings,

with relevant information being distributed to all investors through:

• regulatory news releases;
• corporate website; and
• annual reports. | Other than our routine engagement with investors on topics of strategy, governance and performance, below are specific matters on which we engaged and that influenced outcomes and actions during 2019.

Remuneration Policy
A formal consultation was undertaken with the 20 largest shareholders prior to the revised Remuneration Policy being put to shareholders at the 2019 AGM.

CEO succession
Several investors expressed an interest in the CEO recruitment process. | Shareholders indicated positive support for the proposed policy changes and the revised policy was approved by shareholders at the 2019 AGM with 95.89 per cent of votes cast in favour.

Investors' views were taken into account during the planning of the CEO recruitment process. Following his appointment, the new CEO met with major shareholders as part of the Half-Year Results roadshow. |
| To meet the new requirements of the 2018 Code, the Board decided that the global reach of the Group's employees is best served by Non-executive Directors meeting with members of the workforce in their home geographical area:

• Gary Bullard met with employees at locations in EMEA;
• Wendy Koh met with employees at a location in APAC; and
• Edgar Masri met with employees at locations in North America.

The Board also discussed feedback arising from employee surveys conducted through the year. | **Employee communications**
Shortly after the new CEO's appointment in April, an employee survey was launched to provide him with a baseline picture of the views of the workforce. This was followed by town hall meetings to discuss the feedback and outcomes and a second survey in October measured progress on feedback received.

Employee share ownership
Employees noted that the existing offerings under the Employee Share Purchase Plans were not competitive with other employers as they did not reflect a discount to the share purchase price. | In the April survey, employees requested additional communication and sharing of ideas between the Executive Management and the workforce, and also between business units. A regular series of town hall meetings was launched in June 2019 to improve the sharing of corporate news, business information and industry updates.

We are currently exploring the introduction of a more attractive offering to encourage employees to own shares in the Company and share in its success. |

Reporting and stakeholder engagement continued

Who? Stakeholder group	Why? Why is it important to engage?	How? Ways Spirent engages
Customers **Key metrics:** • Order intake • Performance feedback	Understanding our customers' needs and behaviours allows us to deliver relevant products and services, retain customers and also attract new ones. It also identifies opportunities for growth.	Directors and management meet regularly with customers in one-to-one meetings or at industry conferences. Our largest customers have Client Partner Executives, who strengthen our relationships and ensure we stay agile to react to their needs.
Suppliers **Key metrics:** • % of Supplier Code of Conduct certifications • % of payments made within payment terms	Engaging with our supply chain means that we can ensure security of supply and speed to market. We depend on the high standards of our carefully selected suppliers in order for us to deliver market-leading products and services.	Spirent has a Supplier Code of Conduct, based on the Electronic Industry Citizenship Coalition (RBA) Code v5.1. The Code sets out our expectations for environmental management, health and safety, labour rights and management systems as well as the provision of sustainability data. Suppliers are subject to audits to ensure they continue to meet high standards on ESG issues and to foster greater collaboration.
Government/ regulatory bodies **Key metrics:** • Compliance • Best practice	Policies and regulatory changes, including changes to the global political landscape and laws and regulations affecting terms of trade, may provide opportunities and pose risk to our operations.	Ongoing engagement with trade compliance authorities ensures compliance with export regulations. Participation in consultation exercises enables Spirent to play a part in the development of regulation and ESG best practice.
Community **Key metrics:** • Charitable donations and participation • Support for STEM education projects	Spirent has the capacity to create a significant positive impact in its communities.	Spirent's Charitable Giving programme provides each member of staff with two days' paid volunteer time off (VTO) per year, a new scheme to match employee charitable donations, and a further fund to provide financial support to local charities directly by the Company.
Environment **Key metrics:** • Greenhouse gas emissions • Energy use	All companies have a responsibility to work to reduce their impact on the environment and engage with stakeholders to discuss how everyone can move towards a more sustainable business model.	Environmental issues are included in supplier audits. Responses are provided to enquiries received from investors and other monitoring bodies. A separate Sustainability Report is published each year, setting out details of the engagements undertaken in this area.

What? Key topics of engagement and feedback and input received	**Outcomes and actions** Impact of engagement and any actions taken
Spirent engages with its customers not only to seek feedback on existing products but also to focus investment into new products to meet customers' future needs.	We continue to evaluate and rationalise our product, solutions and services portfolio to meet the needs of our customers and their operational objectives.
Supplier audits not only demonstrate our strong commitment to embedding sustainability across our whole value chain to our suppliers, but also provide a valuable framework to share innovation and good practice. The approval status of key suppliers is reviewed each quarter.	Our close collaboration with suppliers has meant improvements in quality, cost management, environmental management and health and safety, and identified new market information and technologies for the Group.
Global trade compliance Reviews of evolving changes to export regulations requiring meetings and discussions with relevant governmental departments. **Diversity strategy** Spirent continues to take part in UK and global surveys relating to the drive for increased diversity in the workplace, in particular at Senior Management levels.	Engagement has reassured customers, investors and relevant authorities that Spirent conducts its business in a compliant manner. Spirent published its first Diversity Policy during 2019, with a commitment to take diversity into account in future recruitment.
Charitable giving Employees asked for clarity and consistency in the Company's approach to charitable giving so that they could make recommendations for deserving causes that could be helped either financially or with volunteering efforts. **STEM education** STEM jobs are predicted to grow globally, but there remains a lack of young people with the right mix of skills to fill them. By engaging with local schools and colleges, Spirent can raise the profile of the opportunities available in our industry.	In February 2019, a new Charitable Giving programme was launched, comprising information on "Company match" donations, how to seek assistance with local charity support, and an expansion of the VTO programme into APAC. A Global STEM Ambassador programme has been launched to provide opportunities for employees to be role models for young people by demonstrating the options for careers in STEM around the world.
Stewardship As investors monitor investee companies' performance on ESG metrics, Spirent engages with information analysts to ensure investors get the data they need to comply with the UK Stewardship Code regime. **Carbon Disclosure Project** Spirent responds to the Carbon Disclosure Project each year to monitor performance against a range of metrics and against peer companies.	MSCI ESG ratings for 2019 show Spirent performing well against peer companies and indices. Spirent's rating for the Climate Change and Supply Chain questionnaire for 2019 was B, an improvement from the C rating achieved in 2018.

04

RISK MANAGEMENT

Spirent is exposed to a number of risks and uncertainties. These risks may arise from internal factors, but some will be a result of external factors over which the Group has little or no direct control. It is the effective management of these risks that supports Spirent in delivering on its strategic objectives, safeguards the Group's assets and, over time, will enhance shareholder value.

The process to identify and manage the principal risks and uncertainties of the Group is an integral component of Spirent's internal control system. The Group's robust approach to risk management is set out in our Annual Report each year.

The Directors confirm that there is an ongoing, robust process to identifying, evaluating and managing the principal risks faced by the Group and the operational effectiveness of the related controls which have been in place. They also confirm that they have regularly reviewed the system of risk management and internal controls utilising the review process set out in the Annual Report.

There are guidelines on the minimum Group-wide requirements for health and safety and environmental management. There are also guidelines on the minimum level of internal control that each of the divisions should exercise of specified processes. Each business has developed and documented policies and procedures to comply with the minimum control standards established, including procedures for monitoring compliance and taking corrective action. The management of each business is required to confirm twice yearly that it has complied with these policies and procedures.

The Board has identified seven principal risks, two of which are related to the themes addressed in our FuturePositive programme: business continuity and employee skills. The full set of risks is set out in the 2019 Annual Report.

Risk	Potential impact
Business continuity Operational risks are present in the Group's businesses, including the risk of failed internal and external processes and systems, human error and external events, such as a natural disaster, a global pandemic or cybersecurity attacks. For example, a significant portion of our communications operations are located in California which has in the past experienced natural disasters, including earthquakes and wildfires. Contract manufacturers are used for the manufacture of a substantial amount of Spirent's products. Spirent's major contract manufacturer is located in Thailand. The incidence of cyber crime continues to rise. Spirent is dependent on its information technology systems for both internal and external communications as well as for its day-to-day operations.	A significant natural disaster or global pandemic could disrupt the Group's ability to conduct business and adversely impact revenue and operating results. Failed internal and external processes, systems or human error could lead to compliance issues. Trade compliance issues continue to remain a focus, particularly with China. Disruption, financial problems of contract manufacturers or limitations in their manufacturing capacity could limit supply and/or increase cost. If a cyber-attack were to be successful it could result in loss of data and confidential information and damage to Spirent's intellectual property, causing major disruption to the business. There would also be a potential impact on Spirent's credibility in the security market.
Employee skill base Employees are crucial to the success of our business. Attracting and retaining highly qualified and skilled employees is essential to enable the Group to deliver on its strategy and to the success of the business.	Intense competition for personnel is faced from other companies and organisations and the loss of key employees, the failure to attract and retain other highly skilled employees, or the failure to adequately plan for succession may impair Spirent's ability to run and expand the business effectively.

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Mitigating actions

An important component of Spirent's corporate governance is its risk management strategy. IT disaster recovery plans are in place for all core business systems and ensure that the wider operations are all fully covered. In 2018, we tested the new Group Business Continuity and Disaster Recovery Policy and Procedure. Regular meetings are held with contract manufacturers and a regular on-site presence is maintained. In addition, the Group's largest manufacturing subcontractor has multiple worldwide sites and comprehensive business continuity plans.

During 2019, we continued with a programme of work to develop processes and procedures in the area of cybersecurity.

Investing in people is at the core of the Group's strategy. The aim is to find, keep and engage the highest calibre of employees and encourage their contribution and development. An environment that fosters innovation and collaboration is critical to Spirent's success, as is ensuring incentive plans are competitive.

Succession planning for senior posts in the Company is reviewed periodically by the Board.

Appropriate career paths and internal recognition programmes are developed for both technical and non-technical staff.

Regular reviews are performed to ensure that all elements of compensation across the Group are competitive with the market.

05
RESPONSIBLE BUSINESS PRACTICES

Spirent has robust processes in place to ensure that it operates in compliance with all applicable legislation, contractual obligations and any voluntary agreements we subscribe to. Our key policies and approaches are set out below.

Ethics and integrity
The Group's Business Ethics Policy sets clear standards of professionalism and integrity for all employees and operations. The Policy can be found at https://corporate.spirent.com

Any critical concerns can be communicated to the Board through the Group's "whistleblowing" procedure. The procedure, which forms part of the Business Ethics Policy, contains arrangements for a confidential reporting facility for reporting to the Audit Committee as appropriate. The Audit Committee reviews any reports and the actions arising therefrom.

Data protection
Spirent takes data security and privacy seriously. We continually review the security of our data systems and procedures in order to ensure that we can react to areas of heightened risk promptly and effectively.

The Group's processes are compliant with the General Data Protection Regulation (GDPR) and we operated an Information Security Management system certified to ISO 27001 for our SecurityLabs business based in Plano and San Jose.

Our procedures restrict the type and quantity of confidential information collected and stored and there are robust procedures in place to protect customer data from unauthorised access and disclosure.

Periodic information security risk assessments are performed, and training is provided to staff to prevent information security breaches. Our internal controls are audited and we have a whistleblower procedure in place for staff to report information security concerns.

Responsible business practices continued

Data protection continued

Spirent has implemented a response procedure to manage breaches of confidential information if they were to occur.

Confidential waste is shredded if in hard copy and certificates of destruction are provided for any electronic storage devices disposed of at end-of-life.

Electronic waste and use of hazardous materials

We aim to reduce the waste we produce including electronic and hazardous waste. We have not set formal waste reduction targets.

The Group's business units comply with the EU's Waste Electrical and Electronic Equipment Regulations 2013 and Batteries Directive and the California Electronic Waste Recycling Programme.

Spirent's hardware products are classified as Category Nine (Monitor and Control Equipment) and came into scope of the EU's Restriction of Hazardous Substances Directive (RoHS) in July 2017, and all products comply with the requirements of the Directive.

We monitor the weight of electronic equipment sold in European markets and participate in WEEE compliance schemes. In 2019 we sold around 4 tonnes of electronic equipment in European markets, a 39 per cent increase from 2018.

Conflict minerals

We have robust processes in place to avoid the use of conflict minerals in our products. The Group is not directly required to comply with or report under Section 1502 of the Dodd-Frank Act, the US Conflict Minerals Law. Our material, component and supplier management processes ensure that it would be in compliance if it were brought in within the scope of this legislation. The Group will likely be subject to the EU Directive on Conflict Minerals when it is enacted into national policy in the UK. We are confident our existing practices will meet the standards required and are monitoring their development.

Modern slavery

We comply with the requirements of the UK Modern Slavery Act 2015 and the California Transparency in Supply Chains Act 2010. We require slavery and human trafficking to be eradicated from our direct supply chain for the products we sell and monitor suppliers by performing regular evaluation surveys to assure ourselves of each supplier's commitment in this area. Spirent's full statement on modern slavery and human trafficking can be found on the Company's website at https://corporate.spirent.com

Business ethics and labour rights

Our workplace practices are governed by a suite of HR policies and our global Business Ethics Policy.

The Business Ethics Policy commits Spirent to the highest standards in human and labour rights, employee conduct and compliance with all applicable legislation. It prohibits corruption and bribery, unethical business practices and political contributions and governs conflict of interest and gifts.

The Board oversees implementation of the Business Ethics Policy.

Two allegations of discrimination were reported in 2019. The Company conducted internal investigations and consulted external legal counsel and neither case was upheld.

Human rights

Spirent recognises human rights as set out in the Universal Declaration of Human Rights and enshrined in EU and UK law through the European Convention on Human Rights and the Human Rights Act 1998. Our Business Ethics Policy sets out our commitment to protecting the human rights of all those who work for or on behalf of the Company.

Freedom of association

Spirent's Business Ethics Policy sets out our commitment to ensuring employees have the freedom to associate or collectively bargain without fear of discrimination against the exercise of such freedoms. No Spirent employees were members of a trade union during 2019.

Spirent suppliers are expected to meet the same standards of freedom of association and compliance of key suppliers is assessed through supplier questionnaires. Given Spirent's supply chain includes a wide range of electronic component manufacturing activities across a number of emerging economies, the business ethics of suppliers are assessed as part of the procurement process and through announced site audits.

Health and safety

The Board has designated the Chief Financial Officer as responsible for health and safety performance within the Group and procedures are in place for incidents to be reported through the Audit Committee to the Board as necessary.

Spirent has health and safety committees at each business unit. Our site at Paignton has a health and safety management system, certified to ISO 45001.

Electronic equipment sold in European markets by weight

Country	Marketed products (kg)		
	2018	**2019**	Change
Sweden	123	**408**	+232%
Germany	1,800	**1,185**	-34%
France	2,970	**1,318**	-56%
UK	1,644	**1,091**	-34%
Total	6,537	**4,002**	-39%

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The health and safety risk profile for the Group remained low during 2019, with 9 reported accidents (2018 12), none of which were reportable under the RIDDOR regulations and none of which required hospitalisation.

There are no roles which have high incidence or high risk of diseases related to their occupation. There are no formal agreements with trade unions which cover health and safety as no Spirent employees were trade union members in 2019.

ESOS
The Group is not required to comply with stages 1 or 2 of the UK Energy Savings Opportunity Scheme (ESOS) Regulations 2014.

Streamlined Energy and Carbon Reporting (SECR)
Spirent is within scope of the Streamlined Energy and Carbon Reporting (SECR) Regulations, and meets its requirements through this Sustainability Report and the disclosures made in the Annual Report.

Carbon emissions calculation methodology
We have reported on all of the emission sources required under the Companies Act 2006 (Strategic Report and Directors' Reports) Regulations 2013. These sources fall within our consolidated financial statements. We do not have responsibility for any emission sources that are not included in our consolidated financial statements as reported in the Company's Annual Report 2019.

We have used the GHG Protocol Corporate Accounting and Reporting Standard (revised edition), data gathered to fulfil our requirements under these Regulations, and location-based emission factors from the UK Government's GHG Conversion Factors for Company Reporting 2019, the US Environmental Protection Agency and the International Energy Agency. Contract-based emissions factors were sourced from the energy providers.

Scope 3 emissions from air travel were calculated from data provided by travel agents and airlines on distance flown. Detailed emissions data was provided for UK flights based on aircraft type used. For all other regions, DEFRA short- and long-haul emissions factors were used.

Data was not available for five small administrative sites, and air travel for these sites was estimated based on headcount and average mileage for the Group.

Emissions from our main contract manufacturers apportioned by spend using Group-level data. Manufacturers with a spend of greater than $5 million have been included in the scope of reporting. Where data was not available, emissions have been estimated using the average emissions intensity. 15 per cent of emissions have been estimated.

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Auditor assurance statement

Scope and objectives
Spirent Communications plc ("Spirent"), acting through Brite Green Ltd ("Brite Green"), commissioned Adrian Henriques (the "Auditor") to undertake independent assurance of its 2019 Sustainability Report (the "Report"). The Auditor has no other relationships with Spirent or Brite Green that might compromise its independence. The assurance process was conducted in line with AA1000AS (2008) and designed to provide Type 1 moderate assurance. The Global Reporting Initiative (GRI) Quality of Information Principles (the "Principles") were used as criteria for evaluating performance information.

Responsibilities of the Directors of Spirent Communications plc and of the Auditor
The Directors of Spirent have sole responsibility for the preparation of the Report, which was produced for them by Brite Green. This statement represents the Auditor's independent opinion and is intended to inform Spirent management. The Auditor was not involved in the preparation of the Report; see www.henriques.info for information on independence and competence.

Basis of our opinion
The Auditor's work was designed to gather evidence with the objective of providing assurance as defined in AA1000AS (2008).

To prepare this statement, the Auditor reviewed the Report and supplementary information, and interviewed Brite Green and Spirent staff. Feedback was provided to Spirent on drafts of the Report and other material and where necessary changes were made.

Findings and opinion
On the basis of the work we have done, we believe the Report fairly represents Spirent's principal stakeholder relationships, impacts on its stakeholders and responses to their concerns.

On the basis of the work undertaken, nothing came to our attention to suggest that the Report does not properly describe Spirent's adherence to the Principles.

Observations
Without affecting our assurance opinion, we also provide the following observations related to the Principles.

Inclusivity
Spirent engages with all its key stakeholders; this year's report contains a fuller description of engagement activities. It is encouraging that engagement with staff during 2019 was expanded. Future reports should give a more detailed account of the staff survey findings. Engagement with suppliers continues beyond tier 1 of its supply chain.

Materiality
The Report covers the material issues relevant to Spirent. The forthcoming materiality analysis should ensure that a range of stakeholders are involved in the process.

While it is helpful to have a much fuller explanation of Spirent's product range, there remains a need to see a more systematic understanding of the comparative impacts of its various products, including those provided virtually.

Responsiveness
It is welcome to see the enhanced staff initiatives across training, outreach and volunteering. There has also been steady progress on carbon and energy objectives; it is good to see the addition of contract-based reporting of emissions.

Spirent has delivered a humane response to the COVID-19 crisis while maintaining commercial objectives.

Spirent has all the components in place of a credible management system for sustainability. To ensure it is effective there is a need for an overall vision for sustainability together with targets for output performance (rather than management processes alone) in areas such as products. The intention to link the sustainability management process directly to Board governance together with the ambition to develop science-based targets is very welcome in this context.

Adrian Henriques
London, July 2020

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GRI index

This Report includes standard disclosures from the Global Reporting Initiative (GRI) Standards. This index sets out the indicators we have and have not included, and those that are not material to Spirent, and where we have provided partial information from a particular disclosure.

Key
Y   Reported
NM   Not material
P   Partially reported
N   Not reported

GRI Standard	Reported	Page number
GRI 102: General disclosures		
Organisational profile		
102-1 Name of the organisation	Y	1
102-2 Activities, brands, products, and services	Y	3-7, 14-17
102-3 Location of headquarters	Y	84
102-4 Location of operations	Y	52, 55
102-5 Ownership and legal form	Y	66
102-6 Markets served	Y	3-7
102-7 Scale of the organisation	Y	2019 Annual Report
102-8 Information on employees and other workers	Y	36-49
102-9 Supply chain	Y	30-35
102-10 Significant changes to the organisation and its supply chain	Y	30
102-11 Precautionary Principle or approach	Y	8
102-12 External initiatives	Y	1, 4
102-13 Membership of associations	N	–
Strategy		
102-14 Statement from senior decision-maker	Y	2
102-15 Key impacts, risks, and opportunities	Y	63-65, 72-73
Ethics and integrity		
102-16 Values, principles, standards, and norms of behaviour	Y	62-75
102-17 Mechanisms for advice and concerns about ethics	Y	74

GRI Standard	Reported	Page number
Governance		
102-18 Governance structure	Y	62 & 2019 Annual Report
102-19 Delegating authority	Y	62
102-20 Executive-level responsibility for economic, environmental, and social topics	Y	62 & 2019 Annual Report
102-21 Consulting stakeholders on economic, environmental, and social topics	Y	68-71
102-22 Composition of the highest governance body and its committees	Y	2019 Annual Report
102-23 Chair of the highest governance body	Y	2019 Annual Report
102-24 Nominating and selecting the highest governance body	Y	2019 Annual Report
102-25 Conflicts of interest	Y	2019 Annual Report
102-26 Role of highest governance body in setting purpose, values, and strategy	Y	62 & 2019 Annual Report
102-27 Collective knowledge of highest governance body	Y	2019 Annual Report
102-28 Evaluating the highest governance body's performance	Y	2019 Annual Report
102-29 Identifying and managing economic, environmental, and social impacts	Y	63-66
102-30 Effectiveness of risk management processes	Y	2019 Annual Report
102-31 Review of economic, environmental, and social topics	Y	63
102-32 Highest governance body's role in sustainability reporting	Y	2019 Annual Report
102-33 Communicating critical concerns	Y	73
102-34 Nature and total number of critical concerns	N	–
102-35 Remuneration policies	Y	2019 Annual Report
102-36 Process for determining remuneration	Y	69 & 2019 Annual Report
102-37 Stakeholders' involvement in remuneration	Y	2019 Annual Report
102-38 Annual total compensation ratio	N	–
102-39 Percentage increase in annual total compensation ratio	N	–
Stakeholder engagement		
102-40 List of stakeholder groups	Y	68-73
102-41 Collective bargaining agreements	Y	74
102-42 Identifying and selecting stakeholders	N	–
102-43 Approach to stakeholder engagement	Y	66, 68-71
102-44 Key topics and concerns raised	Y	68-71

Key
Y   Reported
NM   Not material
P   Partially reported
N   Not reported

GRI Standard	Reported	Page number
Reporting practices		
102-45 Entities included in the consolidated financial statements	Y	1
102-46 Defining report content and topic boundaries	Y	63-66
102-47 List of material topics	Y	63
102-48 Restatements of information	NM	–
102-49 Changes in reporting	NM	–
102-50 Reporting period	Y	1
102-51 Date of most recent report	Y	31 Dec 2018
102-52 Reporting cycle	Y	Annual
102-53 Contact point for questions regarding the report	Y	84
102-54 Claims of reporting in accordance with the GRI Standards	Y	1
102-55 GRI content index	Y	79-83
102-56 External assurance	Y	78
GRI 103: Management approach		
103-1 Explanation of the material topic and its Boundary	Y	63-67
103-2 The management approach and its components	Y	12-77
103-3 Evaluation of the management approach	N	–
GRI 205: Anti-corruption		
205-1 Operations assessed for risks related to corruption	Y	64, 74
205-2 Communication and training about anti-corruption policies and procedures	Y	42, 64
205-3 Confirmed incidents of corruption and actions taken	N	–
GRI 302: Energy		
302-1 Energy consumption within the organization	Y	54-55
302-2 Energy consumption outside of the organization	N	–
302-3 Energy intensity	Y	54-55
302-4 Reduction of energy consumption	Y	54-55
302-5 Reductions in energy requirements of products and services	Y	22-26
GRI 305: Emissions		
305-1 Direct (Scope 1) GHG emissions	Y	55
305-2 Energy indirect (Scope 2) GHG emissions	Y	55
305-3 Other indirect (Scope 3) GHG emissions	Y	56

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GRI Standard	Reported	Page number
305-4 GHG emissions intensity	Y	56
305-5 Reduction of GHG emissions	Y	56
305-6 Emissions of ozone-depleting substances (ODS)	NM	–
305-7 Nitrogen oxides (NOX), sulphur oxides (SOX), and other significant air emissions	NM	–
GRI 306: Waste		
306-1 Waste generation and significant waste-related impacts	P	74
306-2 Management of significant waste-related impacts	P	74
306-3 Waste generated	P	74
306-4 Waste diverted from disposal	N	–
306-5 Waste directed to disposal	N	–
GRI 308: Supplier environmental assessment		
308-1 New suppliers that were screened using environmental criteria	Y	33-34
308-2 Negative environmental impacts in the supply chain and actions taken	Y	30-33
GRI 401: Employment		
401-1 New employee hires and employee turnover	Y	40
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Y	41
401-3 Parental leave	Y	40
GRI 402: Labour/Management relations		
402-1 Minimum notice periods regarding operational changes	N	–
GRI 403: Occupational health and safety		
403-1 Occupational health and safety management system	Y	64, 70, 74-75
403-2 Hazard identification, risk assessment, and incident investigation	Y	74-75
403-3 Occupational health services	Y	77, 74
403-4 Worker participation, consultation, and communication on occupational health and safety	Y	74-75
403-5 Worker training on occupational health and safety	Y	42
403-6 Promotion of worker health	N	–
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Y	74-75
403-8 Workers covered by an occupational health and safety management system	Y	74-75
403-9 Work-related injuries	Y	75
403-10 Work-related ill health	Y	75

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Y   Reported
NM   Not material
P   Partially reported
N   Not reported

GRI Standard	Reported	Page number
GRI 404: Training and education		
404-1 Average hours of training per year per employee	Y	42
404-2 Programmes for upgrading employee skills and transition assistance programs	Y	42-45
404-3 Percentage of employees receiving regular performance and career development reviews	P	37
GRI 405: Diversity and equal opportunity		
405-1 Diversity of governance bodies and employees	Y	38-40
405-2 Ratio of basic salary and remuneration of women to men	P	39
GRI 406: Non-discrimination		
406-1 Incidents of discrimination and corrective actions taken	Y	74
GRI 407: Freedom of association and collective bargaining		
407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Y	74
GRI 408: Child labour		
408-1 Operations and suppliers at significant risk for incidents of child labour	P	65
GRI 409: Forced or compulsory labour		
409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labour	N	–
GRI 412: Human rights assessment		
412-1 Operations that have been subject to human rights reviews or impact assessments	Y	32
412-2 Employee training on human rights policies or procedures	N	–
412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Y	30-33
GRI 414: Supplier social assessment		
414-1 New suppliers that were screened using social criteria	Y	30-33
414-2 Negative social impacts in the supply chain and actions taken	Y	30-33
GRI 418: Customer privacy		
418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	N	–

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