

# RIBBON

## SUSTAINABILITY REPORT

### 2022



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There is no better time to do the business we do. Ribbon, as a unique company providing open, cloud-centric solutions to enable secure communications and delivering disruptive optical networking innovations, is at the heart of global advancement in digital communications and connectivity, enabling people to leverage new technologies to live better and fuller lives. In a world in which everyone can be connected, everywhere, we are on a mission to help the world’s leading communications service providers and enterprises embrace the next generation of communications technologies so that they are accessible, affordable, safe and always-on for everyone.

In 2022, Ribbon delivered strong growth in both IP Optical and Cloud & Edge offerings, including cloudification and modernization of optical networks across the world, allowing providers to expand their services with minimal or no capital investment and reduce environmental impacts with improved data transmission capacity per unit of energy. For example, Ribbon’s XDR 2000 routers are the most power-optimized that Ribbon has ever produced, delivering an 80% or more improvement in power consumption in Gigabit per second capacity compared to our early models. Our secure VoIP solutions are helping providers and users around the world expand their use of cloud-based calling with the highest levels of security ever. And our significant investment in R&D—25% of our total revenue in 2022—will ensure we stay ahead of the game in innovation and delivery of even more advanced technologies in the future. By accelerating the transformation

of network and communications technologies, we are supporting global sustainable development—broader connectivity with a lower environmental footprint—enabling so many energy-intensive activities to be conducted across digital platforms, ranging from e-commerce, to telehealth, to online education, to business meetings over Webex or Zoom. Similarly, the social benefits of our products and services enhance lives by connecting people to platforms and services that they use to generate income, learn new skills and stay in touch with friends and family.

Our ability to grow and succeed is underpinned by our values-based approach to doing business and our commitment to sustainable practices that build trust with our employees, customers, investors and communities. Among the achievements you can read about in this Sustainability Report, we made strong progress against our

climate target, reaching 16% reduction in absolute direct greenhouse gas emissions since 2018, more than halfway to achieving our 2030 target. This positive result reflects ongoing efforts to make our operations more efficient, optimizing our global site activities and increasing our use of renewable energy, with our operation in Bengaluru switching entirely to renewably sourced electricity. Additionally, we have driven focus on ensuring responsible and ethical practices in our supply chain and have a plan to audit key suppliers in 2023, in line with our target. We intensified efforts to enable women to reach senior levels of our organization and, although progress was slower than planned in 2022, we are committed to delivering our target of 30% of management positions to be held by women by 2025. Our commitment to safe working yielded our best safety

results ever with a 33% reduction in our Recordable Injury Rate. 83% of Ribbon employees would recommend Ribbon as an employer; we are reassured that our efforts to engage and inspire our employees are contributing to our positive performance.

Thank you for your interest in this report. We welcome your feedback.

**Bruce McClelland**  
President and Chief Executive Officer



**Integration of environment, social and governance (ESG) matters into our business strategy and practice remains a priority.**

**Bruce McClelland**  
President and Chief Executive Officer



# 2022 SUSTAINABILITY HIGHLIGHTS

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**83%**   
of employees confirmed they would recommend Ribbon as an employer in our global employee survey


**17%**   
women in management roles

**26%**   
of new hires were women

**Newsweek's Most Responsible Companies 2023**  
ranking 6th among 50 software & telecommunications companies


**12.5**   
training hours tracked per employee on average across our workforce


**33%**   
reduction in our total injury rate from 0.158 in 2021 to 0.106 in 2022

**870**   
employees volunteered more than 3,500 hours in Ribbon's 2022 Global Day of Service

**TIA QuEST**  
Global Sustainability Award 2022

**16%**   
reduction achieved in absolute Scope 1+2 carbon emissions in 2022 compared to our 2018 base year


**57%**   
waste diversion due to in recycling efforts to reduce landfill

**88%**   
cumulative reduction in equipment and laboratory space compared to non-optimized operations

**EcoVadis Silver Sustainability Rating in 2022**  
placing Ribbon in the top 16% of our peer companies in the Information and Communications Technology sector

**99%**   
of contract manufacturing operations now included in Scope 3 emissions

**78%**   
of in-scope suppliers provided responses to our conflict minerals survey, representing a 19% increase in the number of suppliers responding.

**14**   
priority suppliers Tier One suppliers selected for in-depth review and auditing against our Supplier Code of Conduct

**America's Climate Leaders 2023**



Learn more >> <https://ribboncommunications.com/media-center/awards>

# ABOUT RIBBON



Ribbon's commitment to next-generation networks and communications technology is a key driver of a low-carbon economy. We enable connectivity that improves people's lives and positively contributes to climate change mitigation.



**Patrick Macken**  
Executive Vice President and  
Chief Legal Officer



# ABOUT RIBBON

## Our Business

Ribbon Communications (Nasdaq: RBBN) delivers communications software, IP and optical networking solutions to service providers, enterprises and critical infrastructure sectors globally. We engage deeply with our customers, helping them modernize their networks for improved competitive

positioning and business outcomes in today's smart, always-on and data-hungry world. Our innovative, end-to-end solutions portfolio delivers unparalleled scale, performance, and agility, including core to edge software-centric solutions, cloud-native offers, leading-edge security and analytics tools, along with IP and

optical networking solutions for 5G. Ribbon maintains a keen focus on our commitments to Environmental, Social and Governance (ESG) matters and reports to our stakeholders through our annual Sustainability Report. To learn more about Ribbon, please visit [rbbn.com](http://rbbn.com).

## Our Values

- **Team:** We work as One Team, advancing together towards common and clear goals.
- **Passion:** We take pride in and celebrate our achievements.
- **Customer:** We strive to be a trusted advisor to our customers by listening to them, anticipating their needs and offering best in class solutions.
- **Innovation (Creativity):** Ribbon's competitive advantage relies on our ability to offer innovative, creative and state-of-the-art technology.



Underpinning everything we value, is the Ribbon concept

**T**ransparency   **R**espect   **U**npretentious   **E**mpowerment

We are open and transparent in everything we do, creating trust among employees, customers, partners, and vendors.

## Ribbon by the Numbers

**\$820 million**

Total revenue (2022)

**\$204 million**

R&D Spend (25% of total revenue)

**1,000+**

Customers

**140**

Countries

**1,000+**

Patents

**>3,300+**

Employees

## Our Products

Ribbon's industry-leading portfolio of technology products is designed to ensure that calls and data are efficiently routed and securely transmitted over many of the world's largest communications networks today and prepare for the networks of tomorrow. Our offerings fall into two broad categories, and Ribbon's flexible solutions are built from both categories to tailor-make networks for all our customers worldwide.



### Cloud and Edge

**Secure, anywhere access to real-time communications**

A range of cloud-based and hardware solutions that include VoIP (Voice over Internet Protocol) applications and voice calling for collaborating apps, as well as security applications and fraud mitigation through identity assurance for robocalling. through identity assurance for robocalling.



### IP Optical Networks

**Flexible, secure, efficient and expandable data transport**

A solution portfolio providing cybersecure multilayer optimized IP and optical transport including carrier ethernet for businesses and networks, enabling efficient and flexible expansion of capabilities, including 5G, for service providers, utilities and critical infrastructure users.

## Our Customers

Our global telecommunications customers include fixed-line, wireless, cable, internet and service providers. Our enterprise customers include businesses of any size and large and distributed enterprises across various sectors with a concentration in government, healthcare, utilities, transport and education sectors. We sell to customers via our direct sales team as well as through indirect channels that include resellers, system integrators and service providers. Independent software vendors also partner with Ribbon to source our software solutions and market them through their sales channels. Many of Ribbon's solutions have been certified and deployed by governmental agencies around the world including the U.S. Department of Defense.



# SUSTAINABILITY AT RIBBON



The Board of Directors at Ribbon takes a keen interest in sustainability matters. We recognize that today's business landscape requires companies to be accountable for their impacts on society and the environment and provide information that helps investors understand how sustainability matters can affect a company's financial performance over the medium and long term. We are supportive of Ribbon's sustainability strategy and engage with the business where needed to help drive improvement.

**Shaul Shani**  
Chairman of the Board





# STAKEHOLDER ENGAGEMENT

At Ribbon, we welcome feedback at all levels of the organization to help us understand the needs of stakeholders and position ourselves to respond effectively.

## Ribbon's Key Stakeholder Groups

- Customers
- Employees
- Suppliers
- Society and Planet
  
- Capital Markets
- Regulators
- Industry
  
- Financers
- Communities
- Influencers

During 2021, we engaged with stakeholders in several ways to understand their perspectives and expectations of Ribbon in our rapidly changing world. Examples of engagement throughout the year can be found in the different sections of this report. See also [Our Approach to Stakeholder Engagement](#).



# MATERIAL TOPICS

As part of a comprehensive materiality assessment, we defined the sustainability material topics for our global Ribbon operations including our supply chain. The results of the materiality assessment were approved by our Executive Team and supported by our Board of Directors. For further details, including definitions of material topics, see [Our Approach to Materiality](#).

## Ribbon's Top 15 Material Sustainability Topics

|   |  |
|---|--|
| <b>Business Integrity</b>                   | <b>Secure and Inclusive Technology</b> |
| Business ethics                             | Data privacy management                |
| Responsible supply chain management         | Cybersecurity & information security   |
| Business continuity & recovery              | Access to connectivity                 |
|   | Digital inclusion                      |
| <b>Low Carbon Economy</b>                   | <b>Future-Fit Workforce</b>            |
| Greenhouse gas (GHG) emissions & reductions | Diversity, equity and inclusion        |
| Sustainable products                        | Employee engagement                    |
| Advanced technologies & innovations         | Occupational health & safety           |
| Digital transformation                      | Employee training and development      |

# SUSTAINABILITY STRATEGY AND TARGETS

We aspire to be proactive about driving sustainability and further embedding sustainable practices throughout our business, in line with the expectations of stakeholders. Informed by stakeholder input in our materiality assessment, our four-pillar sustainability strategy and targets help drive our performance. Our strategy is also aligned with critical global issues addressed by the United Nations Sustainable Development Goals (SDGs).

| Strategy                          | Trusted Technology for People and Planet  |   |  |   |
|-----------------------------------|---|---|--|---|
| <b>Pillars</b>                    | <b>Business Integrity</b>   | <b>Secure and Inclusive Technology</b>  | <b>Low Carbon Economy</b>  | <b>Future-Fit Workforce</b>   |
| <b>Long-term Goal</b>             | Be a positive and trusted force in business through ethical conduct in all that we do | Be the provider of choice for safe and secure network and communications technology | Contribute to decarbonizing the global economy through innovative technologies and resource efficiency | Empower and engage a diverse workforce to deliver trusted technology for a low carbon economy |
| <b>Alignment with the UN SDGs</b> | <b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b><br>                                  | <b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b><br>                                | <b>13 CLIMATE ACTION</b><br>   | <b>8 DECENT WORK AND ECONOMIC GROWTH</b><br>  |

| Our Three by Thirty Sustainability Targets   | Progress in 2022   | Explanation  |
|--|--|--|
| <b>Climate Change:</b> Reduce direct carbon emissions by 30% by 2030 (Scope 1+2 CO <sub>2</sub> e, from a base year of 2018)                       | <b>16% reduction</b> of direct carbon emissions compared to 2018   | Reductions driven by improved efficiencies and adoption of renewable energy, which we will accelerate in future years.                           |
| <b>Diversity &amp; Inclusion:</b> Increase women in management to 30% of all management roles to be held by women by 2025                          | <b>17% of management</b> roles were held by women in 2022  | We expect ongoing efforts to accelerate the advancement of women will be reflected in future results.  |
| <b>Supply Chain:</b> Achieve 30% of our Tier 1 suppliers audited with zero major non-conformances against Ribbon's Supplier Audit Protocol by 2025 | <b>14 Tier One suppliers</b> identified and selected based on extensive engagement across the supply chain; third party company selected for supplier auditing | Having taken the time to rigorously examine practices in our supply base and define our audit protocols, we plan to begin onsite audits in 2023. |



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# SOCIAL IMPACT: TECHNOLOGY AND PEOPLE



Ribbon views sustainable growth as one of its primary goals. The company's Board, officers and employees are determined to be more than merely compliant in monitoring and reporting on Ribbon's progress towards achieving sustainability. They task themselves with defining sustainability within the framework of the company's particular markets, products, customers and suppliers so as to be more responsive, resilient and successful. In short, Ribbon seeks to make sustainability a durable competitive advantage.



**Bruns Grayson**  
Director

# NEXT-GEN TECHNOLOGY

Breakthroughs in communications and networks technologies are opening incredible possibilities for connectivity, productivity and efficiency across every dimension of life across the globe. At Ribbon, we maintain our position at the leading edge of technology through investment in research and development of solutions that flexibly meet our customers’ needs both now and in the future. In 2022, we continued to deploy advanced technologies to help customers push the boundaries of what’s possible today to deliver a better tomorrow for people, business, communities, cities and countries.

## Advancing Thailand’s Digital Economy

The Thai government aims to become an ASEAN digital infrastructure hub and transform the country into a digital economy; it aims for “Thailand Industry 4.0” digital transformation to contribute 25% of national GDP by 2027 by encouraging digital creativity and innovation, development of new technology and promoting digitally driven markets.<sup>1</sup> With more than 60 million end-customers, the telecom industry in Thailand is the second-largest telecommunications market in Southeast Asia.<sup>2</sup>

In alignment with Thailand’s ambitious plans to become a leader in digital infrastructure and communications, we introduced our IP Optical portfolio in Thailand to offer service providers and enterprises the best available technology and support. Our portfolio enables providers to deliver innovative services rapidly and manage the need for increasingly high bandwidth and complex network slicing automation in a rapidly evolving tech-savvy market. By offering advanced and cost-effective IP Optical and 5G capabilities, providers can guarantee performance levels, support network sharing and maximize network asset utilization. Ribbon’s Apollo optical networking portfolio now deployable in Thailand leverages 400G ZR+, the latest disruptive technology that incorporates “pluggables” to deliver high optical bandwidth and low power consumption across long distances. This cutting-edge transport solution provides an interoperable, open ecosystem that means service providers can expand current services while establishing the flexibility to incorporate new solutions as they are developed.

“Combining optimized hardware, automation software and an open architecture, our IP Optical portfolio is the solution of choice for service providers, enterprises and critical infrastructure companies to rapidly create and deliver innovative new services.”

**Sam Bucci**  
Executive Vice President, Chief Operating Officer, Ribbon



<sup>1</sup> ITA, Thailand, <https://www.trade.gov/country-commercial-guides/thailand-telecommunications>, accessed May 2023.

<sup>2</sup> Market Research Thailand, <https://www.thailandmarketresearch.com/insight/future-of-the-telecommunications-industry-in-thailand>, accessed May 2023.

## Boosting 5G Deployment Across India

Bharti Airtel, India's leading telecommunications services provider, selected Ribbon to expand its IP Transport backhaul network to deploy 5G throughout India. This exciting new development leverages more than 17 years of Ribbon's service to Airtel grounded in a strong trust-based relationship. Ribbon's IP Optical teams worked closely with Airtel to design a solution to meet their exact, wide-ranging specifications for technical capability, delivery and cost-efficiency. Our 5G Cell Site Router (CSR) solution leverages Ribbon's existing IP Optical platforms already deployed by Airtel and provides support for multiple access technologies and services with full 5G readiness across Airtel's network. Ribbon will deploy more than 8,000 nodes in 100 cities across India in 2023 in the first phase of this leading-edge deployment.

“ With more than 360 million subscribers in India, Airtel leads the market, transforming connectivity across India, including in rural areas. 5G is critical for India's continued economic development as a country and for Indian people to realize their potential and have a better quality of life.

**Gaurav Bhasin**  
Senior Vice President, Key Accounts, Ribbon India



## Modernizing Healthcare Communications in Australia

Anglicare Sydney is recognized as one of Australia's most important community service agencies and provides critical services to community members throughout many New South Wales regions, particularly in aged care. Anglicare's call center environment needed upgrading to overcome the challenges of multiple communication technologies and lack of coordination across 24 sites, impacting the quality of service the organization could provide. To transform Anglicare's communications infrastructure, Anglicare Sydney selected Ribbon's Session Border Controller (SBC) solutions that would provide secure calling connectivity for its contact center, offices and aged care and retirement living facilities. Our site-by-site enterprise-wide deployment of consolidated voice services with our SBCs allowed for interoperability between old and new systems, with no disruption to continuity of service to Anglicare's customers.



“ Ribbon's solution has dramatically simplified the deployment of connectivity and security services for our new communications environment, which includes leveraging Microsoft Teams calling capabilities. Having a modern, state of the art communications environment enables us to serve our customers, staff and volunteers more easily, consistently and comprehensively.

**Hamish Maple**  
IT Enterprise Architect, Anglicare Sydney

# ADVANCED NETWORKS AND SOLUTIONS

Today and tomorrow’s technologies require next-generation networks for improved speed, agility, security and economics. Service providers are embracing software-based, intelligent and flexible disaggregated solutions that allow them to shift away from proprietary hardware solutions and adapt flexibly to market needs. Customers trust us to solve their most challenging communications requirements, enabling people and devices to connect anytime, anywhere.

## Building a National Network in Botswana

In 2022, Ribbon was selected to upgrade and enhance the national telecommunications infrastructure backbone network across Botswana, supporting high-bandwidth connectivity for telecom and Internet service providers across the country. The network is provided by BoFiNet, connecting more than 75 of the country’s service providers across 10,600 kilometers of fiber covering more than 200 towns and villages.

“ Our backbone network is not only vital for service providers in Botswana, but also handles an enormous amount of international traffic, playing a crucial role in both Pan-African and global connectivity for the entire country. Ribbon’s solution gives us the flexibility to provide our customers with the connectivity they need today, the resilience and reliability to guarantee those services, and the capacity to grow and modernize, supporting their needs both now and well into the future. ”

**Mpho Koolese**  
BoFiNet Technical Executive, BoFiNet

Ribbon provided BoFiNet with a multi-terabit optical network that combines DWDM transport and OTN switching that work with Ribbon’s optical networking products, offering a fully programmable flexible optical multi-channel network that supports with possibilities to upgrade as demand increases.

## Upgrading Communications Services in Madagascar

Blueline Madagascar a provider of internet, voice and television services throughout Madagascar, selected Ribbon’s Apollo Optical Networking solution to upgrade the bandwidth capacity of its communications network. Our end-to-end solution enables Blueline to meet current bandwidth demand while flexibly scaling as demand grows and includes customized cabinets incorporating a 36-hour uninterruptible battery-backed power supply that enables the high level of reliability needed in the region. In addition to delivering the ability to offer the latest in communications services and high-speed bandwidth, Ribbon’s Apollo solution can also help Blueline reduce operational and maintenance costs through our active monitoring system that traces fiber cuts to within a meter and facilitates quick repairs if lines are cut.



“ We needed to quickly expand our bandwidth capabilities in several key cities and had unique requirements for housing critical optical equipment along some very challenging terrain in our coverage area. ”

**Damien de Lamberterie**  
General Manager, Blueline Madagascar

## Enhancing Cloud-Based Calling Globally

In 2022, we introduced our new Cloud Connect service for Webex Calling, a major extension to the Ribbon Connect portfolio. Ribbon Connect for Webex enables service providers to use telephony services to Webex Calling deployments anywhere in the world via Cloud Connect. With the continuing increase in cloud-based communications services, our customers are continually seeking solutions that offer flexibility and reliability while offering more choice and improved service to users. With this addition for Webex Calling, Ribbon offers an essential new tool for our customers to succeed with cloud-based deployments.



## Supporting Critical Infrastructure In Eastern Europe

The Electricity Transmission System Operator of North Macedonia (MEPSO) engaged Ribbon in conjunction with local partner, Infosoft Systems, to modernize MEPSO's network. MEPSO aims to provide a reliable source of electricity to both large industrial customers and to the low voltage grids serving end-users throughout Macedonia in an environmentally efficient manner to deliver a reduction in greenhouse gas emissions across the network. Ribbon is providing its full range of leading IP Optical Networking solutions including state-of-the-art IP routing, packet transport and end-to-end network management to deliver network activation by mid-2023. Greenhouse gas emissions reductions will be delivered through smart meters and efficiencies in the new data transmission system. Ribbon's flexible solutions have enabled MEPSO to flexibly implement this upgrade without adding new hardware.



With this undertaking, MEPSO is taking a leading position in the Balkans as a provider with the ability to understand and manage its network for enhanced productivity and efficiencies.

**Amos Cohen**  
Head of Sales Central East Europe & Global Accounts  
Business Unit, Ribbon



## Expanding Long Haul Submarine Data Transmission Capacity

We engaged with IPS, a leading provider of international connectivity services for communications service providers, to deliver Ribbon's Apollo Optical Networking solution to power 100Gigabit Ethernet (100GbE) services delivered over both terrestrial and undersea cables from Manilla to Hong Kong and Singapore. Submarine applications must deliver extensive capacity and carry the highest level of communications services on each channel to realize cost efficiencies. Our IP Optical Network solution enables IPS to maximize capacity to provide its customers with high-bandwidth, reliably and efficiently, significantly enhancing communications possibilities in the region.



Our ability to seamlessly deliver connectivity services to our customers over long distances is key to the success of our business. Ribbon's Optical transport technology allowed us to maximize our available capacity and transmit world-class communications applications via our submarine services under the South China Sea.

**Koji Miyashita**  
President and CEO, IPS



## Transforming Education Networks

Ribbon is a longstanding provider of leading edge network systems for educational establishments and a significant contributor to the National Research and Education Networks (NRENs) that build a community across universities to allow the sharing of both commercially sensitive and educational leading-edge data. NRENs enable seamless sharing of science-based research, facilitating academic collaboration and progress across Europe. Universities often run their own networks rather than using a service provider, and therefore rely on robust, reliable and flexible networks that support high data-volumes with low latency and can accommodate open interface standards, bespoke applications and bandwidth expansions. In specific research subjects such as medical research, network security is of primary importance. In 2022, Ribbon supported NRENs in eight European countries covering hundreds of educational campuses and research buildings.





## Network Security Evolution Solutions in Europe

Enhancing communications security is a fundamental differentiator for Ribbon. Our customers seek the best available protection for their networks and their users to combat the multitude of fraudulent interventions that continue to increase as voice over cloud becomes more prevalent. Ribbon offers interoperable solutions for customers to protect their users from malicious attacks, nuisance and robocalls, as well as to help them comply with STIR/SHAKEN legislation that service providers in North America are required to implement. Part of the Ribbon Call Trust® portfolio, Ribbon’s STIR/SHAKEN solution is designed to fulfill the requirements for caller identity authentication, signing, verification and certificate management as defined by legislation, and has been deployed by several customers in North America, protecting users in millions of phone calls every day.

In 2022, similar legislation spread to Europe with the introduction of the “Loi Naegelen,” (Naegelen Law), requiring French service providers to implement a solution protecting their customers from various types of telephony-based fraud by July 2023. To support compliance, Paritel, a provider of telecom solutions to enterprises and small businesses, selected Ribbon’s STIR/SHAKEN solution, leading the way in European markets.



Malicious calls from bad actors are causing our customers to lose trust in the phone network. We are working to restore integrity to our customers’ calling experience, in addition to meeting the requirements of the Loi Naegelen.

**Guillaume Rouderges**  
Telecom Infrastructure Manager, Paritel



## Transforming Rural Networks

Expanding rural connectivity in the U.S. is a priority for Ribbon. Approximately 19 million Americans—6% of the population—lack access to fixed broadband service at threshold speeds. In rural areas, nearly 14.5 million people (25% of the rural population) lack access to broadband. In tribal territories, nearly one-third of the population lacks access.<sup>3</sup> With the acceleration of remote and hybrid working over the past three years, connecting the unconnected and improving communications technologies in rural America is a national imperative.

In 2022, we maintained our strong relations with rural communities in different regions and implemented solutions in Montana, Kansas, South Dakota and North Carolina, enabling communities in these regions to benefit from the latest cost-effective and resilient broadband networks and supporting technologies. Similarly, First Nations Tribal communities are becoming much more active in deploying broadband access for their communities; we continue to work with different tribes to provide education on broadband technology and to illustrate the career paths available in our industry for those interested in taking on professional roles. We maintain an ongoing relationship with the National Tribal Telecommunications Association (NTTA) and offer a full suite of advanced services to meet Tribal needs.



<sup>3</sup> Eighth Broadband Progress Report, Federal Communications Commission. <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/eighth-broadband-progress-report>

# OUR EMPLOYEES

As a global company with employees in more than 27 countries, our aim is to create a workplace that is engaging, inspiring, challenging, and inclusive. We align our resources, processes, and platforms to build a work culture that reflects and expresses our core values, enabling us to work efficiently across borders and functions. We strive to be an employer of choice for our current employees and for future employees who seek an opportunity to join a dynamic business, positioned at the nexus of global communications technology and social transformation.

We offer Ribbon employees opportunities for personal and professional growth while maintaining a culture of open and transparent communications; everyone receives constructive performance feedback and is encouraged to offer new ideas about any aspect of the work we do and our ways of working.

Ribbon's core values are: teamwork; passion (taking pride in our achievements); being a trusted advisor to our customers; innovation; and being "TRUE" - Transparent, Respectful, Unpretentious and Empowered. We leverage these values to engage our employees, providing a workplace in which we all advance with shared objectives that contribute to a successful business, a better society and a better world.

## Ribbon's Employee Team in 2022 (year-end headcount)

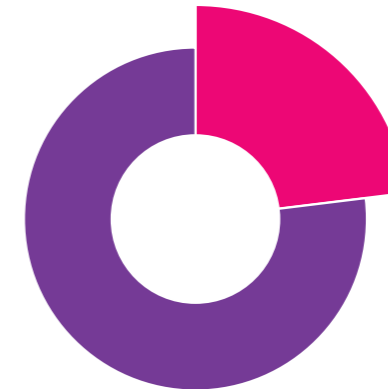
### EMPLOYEES BY REGION (2022)

- 28%** North America
- 31%** EMEA
- 38%** Asia
- 3%** Latin America



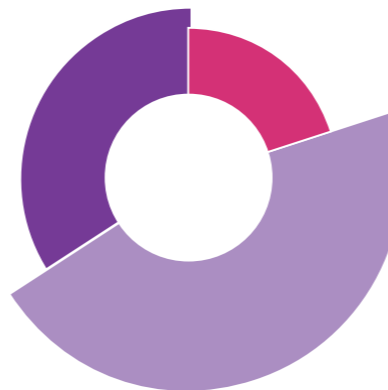
### EMPLOYEES BY GENDER (2022)

- 23%** Women
- 77%** Men



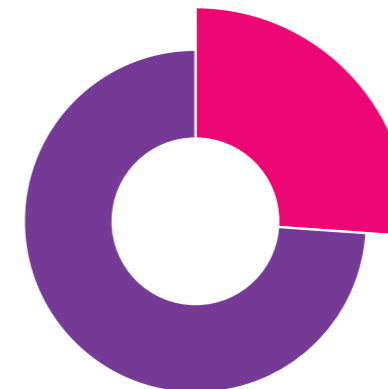
### EMPLOYEES BY AGE GROUP (2022)

- 20%** Below age 30
- 46%** Age 30-50
- 34%** Above age 50



### NEW HIRES BY GENDER (2022)

- 26%** Women
- 74%** Men



**674**  
employees  
(20%) were covered by collective bargaining agreements in 2022.

# Employee Engagement

In 2022, more than 2,300 employees provided feedback to Ribbon in our annual Employee Experience Survey—a 70% participation rate, up 14% compared to 2021. Our aggregated employee responses to the survey questions indicated a positive trend in satisfaction and engagement. The key reasons employees chose Ribbon were identified as:

- Technology and professional interest
- Work environment and flexible work model which enables a balanced and healthy work-life
- People—typically the direct manager and the work team

These factors, along with other important measures of engagement, yielded positive results in the Employee Experience Survey.

## Key areas of high satisfaction among employees in 2022

95%

felt they are accepted and valued regardless of their gender/ age/ religion/ ethnic background etc.

91%

indicated that their manager is attentive and provides them with the professional and personal support they need

90%

indicated that they have clear goals and objectives for their work

89%

indicated that they are heard and valued by their managers and peers

89%

indicated that they feel the work they do at Ribbon has an impact and is meaningful

83%

would recommend Ribbon to their friends and colleagues as a place to work

Additionally, employees showed appreciation for the visibility and communication style of our Chief Executive Officer, as well as our company-wide communication processes. 81% were highly satisfied with the effectiveness of communications and engagement by the Chief Executive Officer. We see open and accessible leadership as a key success factor in leading our global team to deliver its best results.

We also identified areas of opportunity to improve employee engagement including clearer career progression opportunities at all levels and increased leadership presence and engagement with employees across the organization. To address these opportunities, and to further reinforce existing strong areas of engagement, we continued with focused actions to be completed in 2023, including:

- **Employee Development:** Expand investment across a range of learning and development platforms, including self-directed learning licenses and in-house training programs to meet employee needs, leadership development programs for managers at all levels from all Ribbon global sites, and a new mentoring program
- **Compensation & Benefits:** Implement our annual global compensation review and relevant adjustments, develop an Employee Restricted Stock equity participation opportunity and promote the ‘Ribbon RealTime Rewards’ recognition platform to Ribbon employees globally, encouraging team members to use it.
- **Communications:** Increase visibility of Ribbon’s leadership team across different in-person and online communication channels.

**Ribbon’s “RealTime Rewards” program enables employees to recognize the achievements and contributions their colleagues and managers and reinforces a “thank you culture”. In 2022, approximately 4,000 rewards were delivered to employees in 29 countries who received a cash benefit of between \$25 and \$100, or other non-monetary recognition.**

## Enhancing Communications

During 2022 we continued our virtual quarterly town hall meetings, led by our Chief Executive Officer, Bruce McClelland, and other executive team members. These events are a platform for uniting Ribbon employees across geographies and remote working, to share essential business updates, customer success, company-wide goal progress, and critical strategy choices and help employees feel more involved in progressing our strategy and goals. Additionally, we continued to conduct local town hall discussions in person or virtually throughout the year, hosted by executive team members, enabling employees to engage on a wide range of local topics.

In 2022, we rolled out Yammer company-wide as Ribbon's main internal communication platform to facilitate open effective and immediate two-way communication between colleagues. We also relaunched our Human Resources portal, a one-stop shop that streamlines and centralizes information that is important to and useful for employees such as compensation, benefits, learning and development and all employment related matters.

## Engaging Employees in Tech

Innovation is one of Ribbon's core values, and we encourage employees to come up with new ideas that challenge technological boundaries.

### Technothon

One of the events that provides team members around the world to showcase their ingenuity is our annual Ribbon Technothon, a 48-hour marathon coding event that is open to all employees. The aim is to incentivize teams to create new solutions for Ribbon and our customers, while encouraging collaboration and healthy competition within the Company. In 2022, 250 employees in 58 teams participated in Ribbon Technothon. In addition to this year's winners, 7 teams from Technothon 2021 whose projects have been implemented were awarded prizes.

### IP Wave Day

In 2022, we created a new learning event to showcase our technologies and expand our employees' knowledge and understanding of IP Wave products and solutions. This one-day event was conducted by our internal experts at our major global sites in Canada, India and Israel. Overall, more than 100 sessions were hosted with more than 1,000 employees participating.



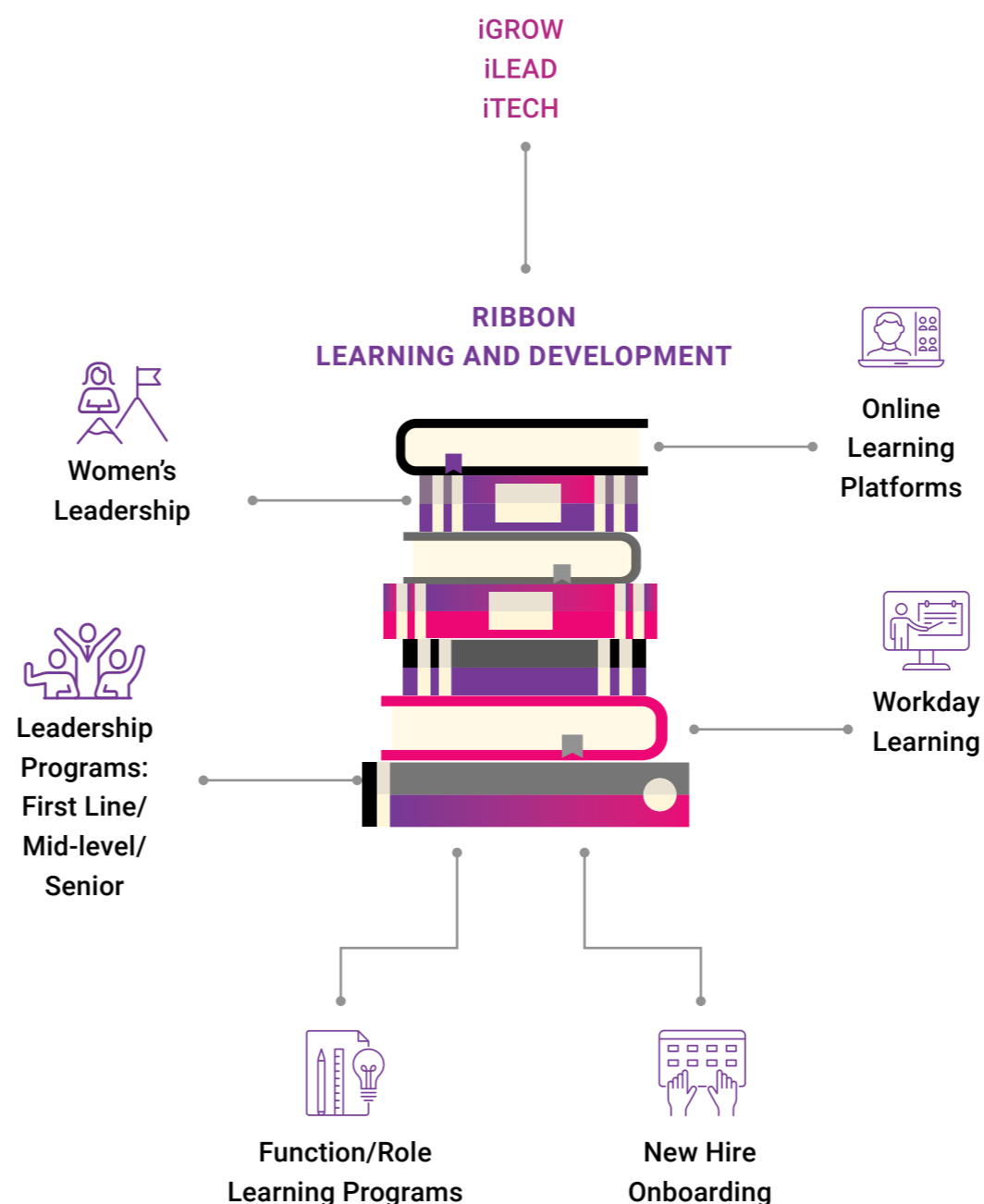
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## Learning and Development

We believe that investing in our employees' personal and professional development enables them to perform their current roles with maximum effectiveness and to be prepared for roles of greater responsibility in the future. During 2022, we continued to invest in employee growth and development across a range learning and development platforms. Our learning programs utilize a combination of in-person and online curricula and include core modules, some of which are mandatory, relating to ethical conduct, products and services, cyber security, safety, human rights and anti-corruption, as well as additional tailored programs on topics such as leadership, management, excellence in service, project management and competency development.

We encourage employees to take a proactive role in their professional and personal development and offer options for self-registration for online courses and webinars, in addition to structured training programs. Annually, we conduct a systematic Learning Needs Assessment using information relating to business and organizational development needs, employee performance development reviews and employee surveys.

Key elements of our learning and development programs include:



### Skills Development Training:

- **iGROW**

Designed for all Ribbon employees, this program provides an opportunity to expand knowledge and skills and support personal and professional development through live webinars on different topics including personal effectiveness skills, communication and more. In 2022, we delivered more than 20 live training webinars.
- **iTECH**

Designed especially for technical and R&D employees, this program provides live webinars in advanced technical topics and in-depth knowledge about the Company's products and solutions.
- **Professional upskilling**

Designed for targeted teams, this program enhances skills and capabilities of specific roles in Ribbon such as customer support, project management etc. In 2022, we delivered six structured Excellence in Service Programs globally.
- **Role-based training**

Designed as customized training with a set of learning activities to equip employees with the specific knowledge and skills needed to excel in their roles.

In 2022, we invested in our workforce with **41,250** hours of training being recorded. On average, the participation rate of **12.5** training hours per employee globally was achieved.

## Self-Directed Learning:

### ■ Udemy for business

Ribbon employees have access to the Udemy for business platform that offers thousands of video courses in almost any topic, allowing employees the flexibility they need to learn anytime and anywhere. In 2022, we granted more than 1,300 licenses and employees took more than 20,000 courses.

### ■ Learning @ Workday

The Workday Learning Management System (LMS) provides Ribbon employees with a modern interface that allows them to access the learning portal along with other employee information. The learning section in Workday includes modules relating to Ribbon's technology, products, process and more.

## Leadership Development Programs

### ■ iLEAD

This program is available for Ribbon managers at all levels providing them with the opportunity to sharpen their managerial skills and gain knowledge in leadership topics.

### ■ Structured Leadership Programs

These programs are customized for programs for first-line, mid-level and senior level managers and provide managers with knowledge, skills, and tools to effectively deal with their leadership challenges. In 2022, we conducted 10 Leadership development programs globally at different company sites.

### ■ Women Leadership Program

This program provides our women leaders with skills to empower and strengthen their managerial capabilities and impact within the organization, understand the challenges and obstacles unique to women and develop the tools to overcome them.

## Onboarding

The onboarding program aims to create a welcoming onboarding experience and sense of belonging to the company, while providing relevant information, training, knowledge, and tools to able new employees to be productive as quickly as possible. The Ribbon Buddy program provides each new hire with a Ribbon employee to help familiarize them with the culture and operational details, and coach and mentor a new hire for the first 90 days. In 2022, we enhanced our onboarding program with new toolkits for hiring managers, a new employee and manager zone in our Intranet portal and a new employee entry survey.

## Compliance Training

Ribbon has several learning courses that are mandatory for all staff regardless of their level or function to ensure familiarity with key regulations, rules, and processes, as well as those that are mandatory for staff carrying out certain functions.

## Career Growth and Internal Mobility

We believe that internal mobility serves both the interests of employees and of the Company. Employees can set alerts for new openings based on their career goals and apply for any job based on their preferences and job requirements.

In 2022, **271** employees took the opportunity to take a new role, including promotions to roles of greater responsibility.

## Succession Planning

Succession planning helps Ribbon to create a pipeline of strong leadership currently and in the future. Our aim is to proactively identify one or more successors for current and future key positions arising from business needs. We use a 9-grid tool to map roles, performance, and potential as input to our succession planning process. In 2022, all key positions were mapped according to the 9 grid tool and all key positions were identified with one or more successors. Also, we introduced a women's succession planning process, where all high potential female leaders at the senior management level and above were identified and individual development plans were created for each future leader.

## Performance Development

Our annual Performance Development Process took place as every year in 2022. The process includes an employee self-evaluation phase, in which all employees are encouraged to reflect on their accomplishments, strengths, and opportunities. Thereafter, managers complete their evaluations and meet with their direct reports to review performance and establish goals together for the coming year. Throughout the year, we maintain ongoing dialogue with check-in sessions and real-time feedback, with flexibility to update goals. This year, we introduced new chat capabilities for managers and their direct reports in the Workday Performance Management tool, allowing for real-time feedback and updates in a timely manner.

In 2022, **98%** of employees participated in a formal performance development review.

## Diversity, Equity and Inclusion (DEI)

We believe that having a diverse group of people who contribute different perspectives and viewpoints is critical to the success of our organization. We are committed to fostering and maintaining a diverse workforce and equitable policies and programs within a culture of inclusion. Improving our gender diversity at management levels, is a priority for Ribbon. We want to create an environment where leaders buy into the value of belonging, both intellectually and emotionally, resulting in all employees feel they belong and connect to Ribbon. In 2022, Ribbon continued to drive our culture and practice of DEI, supported by our DEI Council, with a focus on advancing women as part of our global 2025 target.

### DEI Council

Ribbon's DEI Council is composed of leaders representing all functions and geographies who are dedicated to creating greater awareness and education about DEI, setting priorities, and developing programs to fulfil these objectives in coordination with Human Resources and other internal stakeholders. In 2022, the DEI Council focused on ways of creating opportunities for women to advance at Ribbon, including working to eliminate bias in recruitment processes and strengthening the women's leadership community.



The DEI Council is part of our commitment to further our awareness of the different backgrounds, cultures and experiences of our employees. The Council comprises leaders from around the company who are dedicated to creating greater awareness and education about DEI, setting priorities, and developing programs to fulfill these objectives in coordination with HR and other internal stakeholders. Our goal is to continue to promote an environment that encourages all team members, regardless of race, sex, background, or affiliation, to take pride in their individual contributions.



**Penny Zhang**  
Director APAC C&E Technical Support & Chairperson,  
DEI Council, Ribbon



### Our 2025 DEI Target

#### Target

**30%** of Ribbon's management positions will be held by women

#### Progress in 2022

**17%** of management roles were held by women in 2022

Advancing the rate of women in management requires consistent, multi-faceted efforts, especially given the traditional predominance of men in our industry and in management levels at Ribbon. We are working diligently to open up opportunities and break down barriers to women's advancement, and expect to see the positive results of these efforts

in the coming years. In the meantime, in 2022, a relatively high attrition rate of women in our Asia and North America regions caused the rate of women in management to drop to a slightly lower rate than in 2021. Overall, however, the rate of women at Ribbon increased from 22% in 2021 to 23% in 2022, like our benchmark group of companies.



Learn more >> Ribbon's [Approach to Diversity, Equity and Inclusion in our Workforce](#)

## Our efforts to lay the ground for accelerated advancement of women in 2022 included:

### Ribbon Women's Leadership Program

This program, launched with a first cohort in 2022, was designed to increase the visibility and influence of women at Ribbon by addressing the obstacles that women face in order to pursue their ambitions in leadership and management roles; identifying gender bias in the workplace and possible solutions; developing ways to create opportunity, influence and mentor others; and build a collective space for ideas and a community for change. Ribbon Board Member, Tanya Tamone, is passionate about ensuring strong women representation at the leadership level at Ribbon and hosted a roundtable session in 2022 with women leaders to explore how Ribbon can support their development.

### Inclusion of DEI in our Leadership Development Programs

Our leaders play an important role in setting the tone for making Ribbon a diverse, welcoming workplace for all employees. During 2022, we included practical ways to advance our culture of DEI through overcoming biases and barriers to inclusion in our leadership development programs.

### DEI Training

In 2022, we organized educational seminars for employees on a range of DEI topics including gender equality in the workplace; eradicating violence against women; and dealing with unconscious bias. All new employees completed an online mandatory tutorial to improve their diversity awareness and knowledge.

### Diversity Awareness

During the year, we published internal articles on a range of topics, highlighting the uniqueness of different groups and cultures, including Black History Month; Women History Month; Ramadan; Diwali; Juneteenth; Pride Month; and Hispanic Heritage Month. Diverse employees from across the organization helped craft these authentic stories.

### International Women's Day (IWD)

We supported IWD by hosting a panel of Ribbon women leaders and employees discussing several important topics that affect women in the workforce including factors that impacted their ability to achieve their career goals; the main barriers they faced in their career path; and the benefits of having women in Ribbon teams.





## Employee Safety, Health and Wellness

The health, safety and wellbeing of our employees is of paramount importance to Ribbon. We believe that all accidents are preventable, and that with the right culture, training, and tools, we can achieve an injury free workplace. Our strong record on health and safety performance helps build trust in our business while demonstrating our commitment to deliver on one of our core responsibilities towards our employees and our visitors. Health and safety awareness training is issued to every employee biennially, this includes hazard identification and instructions on how to raise an issue for rectification. All sites are audited at least every three years in line with the ISO 45001 standard. Our largest 29 sites have an enhanced monthly “walk around” as defined in our Health and Safety management system and risk assessments. Our Real Estate team performs safety reviews with all contractors working in our facilities before they perform their regular and preventative maintenance tasks to ensure risks are identified and procedures are in place to minimize the interactions between maintenance and other building users. Particular attention is paid to noise and other stressors in our laboratory spaces where PPE is provided and regular noise, temperature and other environmental monitoring is in place.

Additional training is provided for those who may work with janitorial staff or in an unusual place of work to ensure safety is in the forefront of the minds of all at Ribbon, we work hard to select low impact cleaning chemicals and have hazardous chemical training available for all staff. We ensure our

workplaces comply with applicable safety regulations wherever we work and promote a culture of safe working and collaboration to eliminate work hazards. We reinforce safety awareness and safety risk management through regular training at all our operating locations including translations to local language where appropriate. Ribbon operations are aligned with ISO 45001:2018 Safety Management System that applies across all our sites and covers all employees.

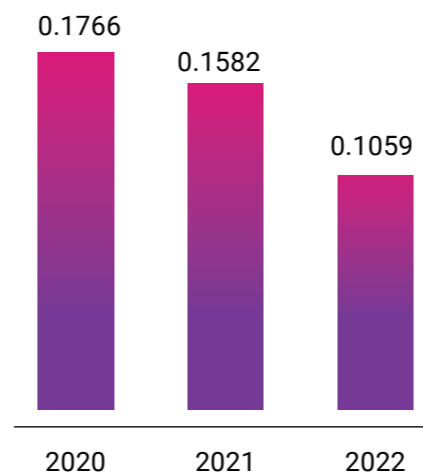


Learn more >> [Our Approach to Health, Safety and Wellbeing.](#)

### Reinforcing Safe Working

In 2022, we delivered a further reduction in our Total Recordable Injury Rate, demonstrating the cumulative effectiveness of many years of fostering a culture of safe working and maintaining safe working practices and regular, frequent training.

**Recordable Injury Rate - Total Workforce (employees and contingent workers)**



### Promoting Employee Wellness

Ribbon promotes health and wellness for all those in the Ribbon family and aims to raise awareness encourage employees to act to maintain healthy lifestyles. We provide health and wellness related benefits in different countries in line with local market norms, such as medical insurance, dental insurance and more for employees and in many cases, with extended cover for employee families. We also focus on aspects of wellbeing such as mental health and deliver educational programs to raise awareness of mental health issues and support employees in seeking help.

In 2022, we advanced three important programs to help employees better manage work-life responsibilities and adopt healthy lifestyles:

- **Ribbon Wellness Program**

We launched the Ribbon Wellness Program which is available to Ribbon employees and their families. This program includes a variety of monthly wellness related topics delivered through activities such as webinars, exercise sessions and engaging challenges. Topics covered in 2022 included healthy nutrition, stress management, fitness and physical health, as well as mental and emotional health. Approximately 25% of our employees participated in one or more wellness activities.

- **Employee Assistance Program**

We launched a global Employee Assistance Program (EAP) for employees and their families in all countries in which Ribbon operates. EAP is a confidential support service that can help our employees and their dependents at no cost. The EAP Care Access Centre can be contacted toll-free, 24 hours per day, 7 days per week.

- **Hybrid Work Model**

We instituted a phased return plan following the COVID-19 pandemic that provided for a gradual return of employees to our offices (typically two to three days per week) based on local conditions and in alignment with regulations. In the second half of 2022, we adopted a Hybrid Work Model where employees spend a minimum of two days per week working from a Ribbon office to encourage collaboration, innovation and socialization, while maintaining the flexibility to work remotely. We have received positive feedback from employees who appreciate this flexibility and confirm it helps improve balancing work and other commitments.

# OUR COMMUNITIES

We aspire to help create a better quality of life in the communities in which we live and work. We encourage our employees around the world to engage in community service and play an active role in local life. Our Ribbon Employee Engagement Committees, established in 2021, continued their activities in 2022. These employee-led groups, based at each of our major locations, support and activate local initiatives and events that contribute to networking, wellbeing and engagement in local communities. Members of these committees also support, plan and execute the annual Ribbon Global Day of Service.

**\$250,000**

In 2022, Ribbon's global charitable donations exceeded \$250,000 to organizations including the American Heart Association, Cystic Fibrosis, Bharti Foundation, United Way and others.

## Ribbon Global Day of Service 2022

Since 2010, Ribbon allows a day of paid time off for all employees to volunteer and contribute to local causes in their communities. Our Global Day of Service has evolved into a week-long series of opportunities for our employees to participate in volunteering activities around the world. During the week, Ribbon employees support non-profits ranging from some of the most well-known charities like the Make-a-Wish Foundation to local organizations that are close to the communities in which our employees live.

### Ribbon Global Day of Service 2022 by the Numbers

**3,557**

volunteering hours

**870**

employees participated

**40**

Ribbon sites in 24 countries

**35**

nonprofits supported across the world

**Throughout the year, we engaged in our communities in several additional ways, for example:**

- In Israel, we supported several community partners with donations of electronic equipment and enrichment events hosted at our sites, and also sponsored participation in a race for the Rett Syndrome Association to build a community.
- In Turkey, we donated unused cosmetics for women at risk, food products and school accessories and bags for under-resourced families.
- In the U.S., we participated in several United Way campaigns at multiple locations with employee donation matching.
- In Canada, employees engaged in fundraising to support the Children's Hospital of Eastern Ontario.
- In India, Ribbon contributed to the Bharti Foundation and 13 other charities across India in support of education, children with special needs and water purification in rural areas.



# ENVIRONMENTAL IMPACT



As a global organization, serving some of the largest telecommunications providers and business enterprises in many countries, Ribbon is advancing the global transition to a low-carbon economy through efficient and flexible network solutions. This is an important dimension of Ribbon's contribution to sustainable development. In addition, Ribbon's sustainability strategy and targets to reduce greenhouse gas emissions from the company's operations, advance gender balance in the business and improve controls in an ethical supply chain. The Board of Directors supports these measures which we believe will strengthen Ribbon as a company as well as contribute to a more resilient society.

**Scott Mair**  
Director

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# ENVIRONMENTAL MANAGEMENT

We maintain an Environment Management System (EMS) in accordance with ISO 14001:2015 Environmental Management Standard. All our primary facilities are certified to this standard, except for our Bengaluru, India facility, which is scheduled to complete certification in 2023 and Hangzhou, China, which is under review. Overall, more than 80% of our facilities by square meters are ISO 14001 certified. In line with our EMS requirements, we regularly conduct internal audits across key environmental functional areas and environmental compliance. In 2022, we completed 12 internal audits with zero critical findings and a single minor nonconformance, which has now been addressed. Our audit results demonstrated good evidence of continual improvement in our processes.

## Climate Change

The information technology and telecommunications (ICT) sector is an enabler of a low-carbon economy. The Global e-Sustainability Initiative's Smarter 2030 Report<sup>4</sup> notes that the majority of the UN Sustainable Development Goal (SDG) targets are directly influenced by ICT and that deployment of ICT across 20 SDG targets analyzed can help accelerate progress on combating climate change by 22% and mitigate downward trends by 23%. The report shows that ICT has the potential to enable a 20% reduction of global CO<sub>2</sub>e emissions by 2030, thus holding emissions at 2015 levels, and to effectively decouple economic growth from emissions growth.

As a significant player in this industry, we remain at the leading edge of technology development and deployment and contribute to realizing the climate benefits of ICT globally. Ribbon's products and services enable our customer base to be more climate resilient and help them reduce the

### Our 2030 Climate Target

#### Target

Reduce direct carbon emissions by **30%** by 2030 (Scope 1+2 CO<sub>2</sub>e, from a base year of 2018)

#### Progress in 2022

**7% reduction** of direct carbon emissions in 2022 versus 2021

#### Progress since base year

**16% reduction** of direct carbon emissions compared to 2018

climate impacts of doing business, as well as comply with global demands to drive a low-carbon economy. Compared to the positive impacts of our technologies, our direct impacts on climate change—our own carbon

footprint across our extended supply chain—remains modest. However, we continue to strive for greater efficiencies in our own operations and are making strong progress in meeting our voluntary 2030 climate target.

**Ribbon's 2022 GHG emissions represent a 41% reduction in emissions intensity (metric tons CO<sub>2</sub>e/\$ million revenue).**



<sup>4</sup> GeSI, <https://gesi.org/research/smarter2030-ict-solutions-for-21st-century-challenges>, accessed May 2023.

## Reducing GHG Emissions

In 2022, electricity accounted for 90% of our total energy consumption. Electricity is the primary source of energy in our operations that are mainly based in leased premises in urban areas. Our strategies to reduce direct GHG emissions have therefore been focused on three objectives that minimize emissions from electricity consumption:

**1. Driving electricity efficiency in operational practices over which we have control.**

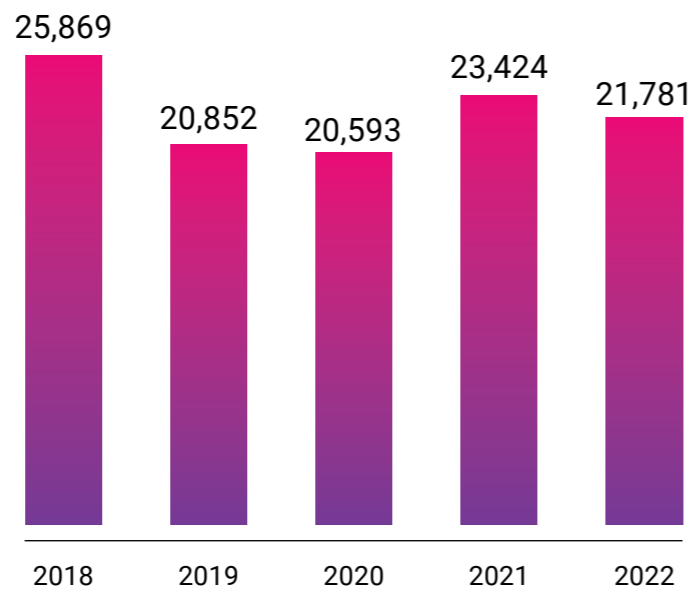
This includes conducting energy audits and implementing identified opportunities to conserve energy; completing our program of conversion to LED lighting at all our sites; ensuring timely preventive maintenance of electricity-powered fixtures such as air conditioning units and replacing old units with newer, energy-efficient models; and engaging employees in energy efficient practices.

**2. Maintaining our program of global site optimization.** In our ongoing initiative to optimize energy consumption globally, that we have implemented for more than 10 years, we continue to resize, right-size and relocate our sites to be closer to customers and reduce surplus space, driving down overall energy needs (see section: [Optimization Program at Global Sites](#)).

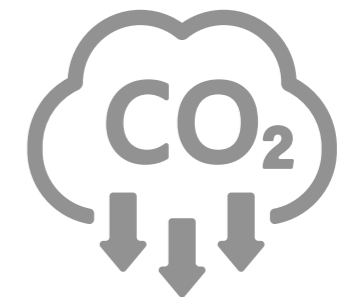
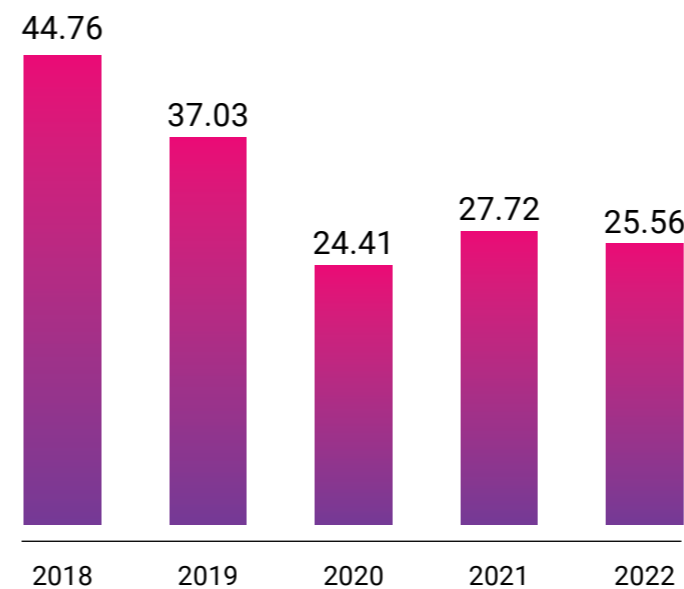
**3. Transitioning to renewable sources of electricity.** We are stepping up our transition to renewable electricity where feasible at sites operated by Ribbon, including exploring, where possible, collaborative arrangements with owners of our leased sites. In 2022, we made significant progress with conversion of our entire operation in Bengaluru, India, to renewably sourced electricity, following successful negotiations with our site landlord.

In 2022, Ribbon sourced almost 6 times as much renewable electricity compared to 2021 with a total of **5.7** million kWh in 2022. This brought renewable electricity to **11%** of our total electricity consumption.

**Scope 1+2 GHG Emissions (Metric Tons CO<sub>2</sub>e)**

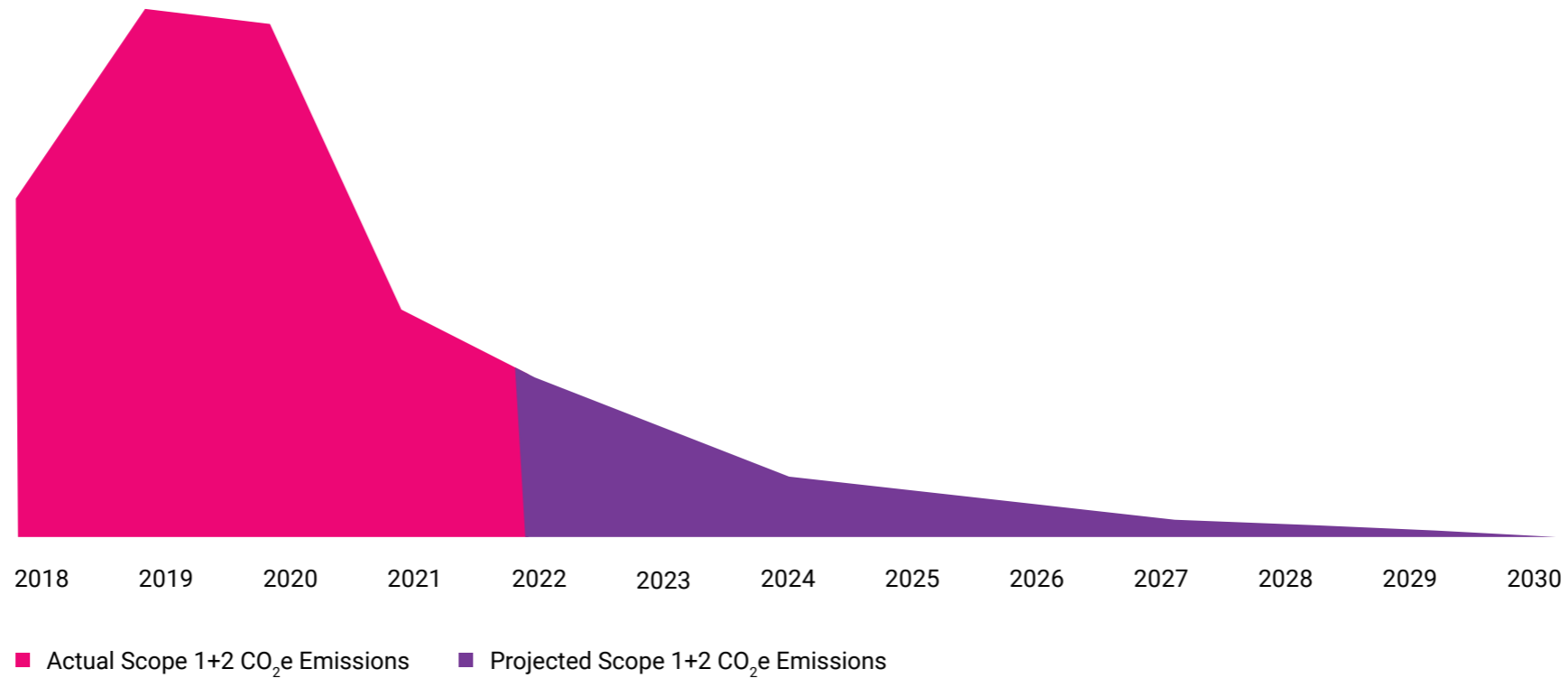


**Scope 1+2 GHG Emissions Intensity (Metric Tons CO<sub>2</sub>e per \$M revenue)**



We are on track with our plans to continue our trajectory of carbon reductions to meet our 2030 target as showing in our Carbon Emissions Reduction Pathway to 2030, and follow our industry to align with EU Directive 2022/2464 NetZero published plans.

### Carbon Emissions Reduction Pathway to Our 2030 Target (Projected reductions by year are estimations)



## Optimization Program at Global Sites

Ribbon continues to occupy 70 facilities around the world. Some locations are dedicated to sales and customer services, while a significant number of sites support complex technical operations, deployed to progress three main types of activity:

- R&D and Customer Support  
Laboratories for software design & verification, equipment testing and certification
- Application centers for Proof of Concept and Interoperability testing of customer solutions
- Data centers for running our internal operations

These facilities house operational telecommunications equipment in the form of server racks, cabinets and electronic equipment with supporting cables and components. Each site requires a steady supply of electricity to power the equipment and associated HVAC systems to maintain a climate-controlled operational environment. Over time, the requirements of individual sites may evolve, depending upon product development demands or the volume of customer equipment required for interoperability testing. Similarly, efficiency opportunities arise through the transfer of data storage to the cloud

to reduce physical hardware needs and processing, and product development that reduces equipment size.

For more than 10 years, Ribbon has augmented the scale of our operations and equipment to meet product development requirements and customer demands while minimizing our overall site space and reducing global energy consumption. Wherever possible, we consolidate equipment into fewer sites, partly to accommodate testing in proximity to our customers for ease of collaboration, and partly to make best use of available space. At the same

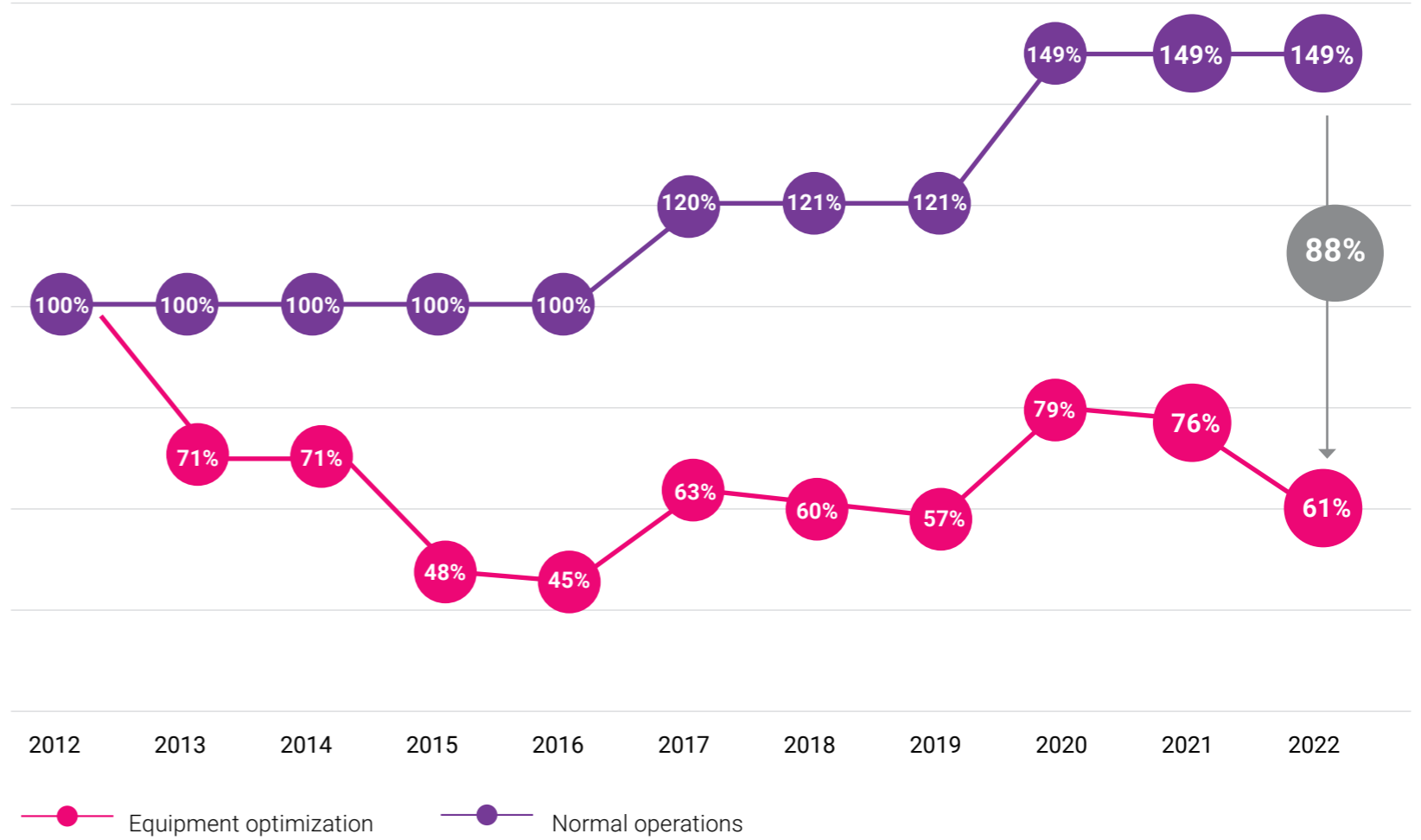
time, we are constantly upgrading old equipment with new power-efficient options, such as replacing aging HVAC systems, and reducing overall equipment inventory.

In 2022, we reduced the number of equipment racks in our laboratories and data centers by 20% compared to 2021, and by almost 40% since the start of our optimization program. Without these optimization efforts, the number of equipment racks and their associated power consumption would have increased by 49% over the same period of time.

## 88%

The cumulative effect of our Optimization Program has been a net reduction of 88% of our equipment and laboratory space since 2012.

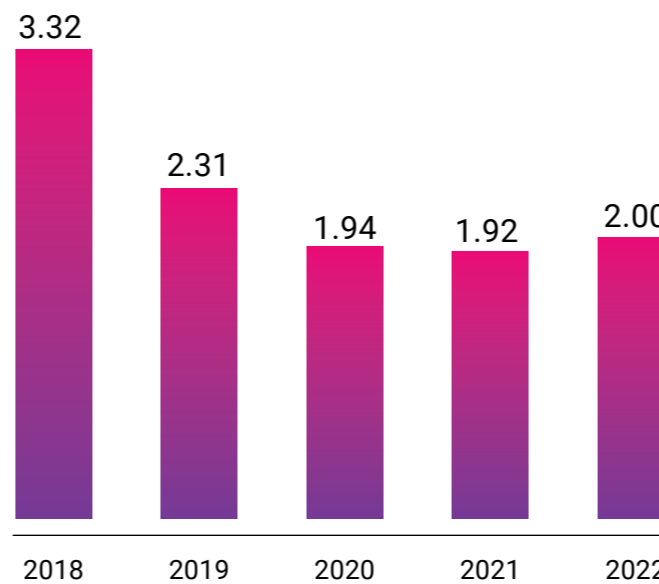
### Ribbon's Equipment Optimization Program



## 40%

Our Equipment Optimization Program has contributed to a reduction in Ribbon's global electricity consumption of 40% per sq.m. over the past five years.

### Electricity Consumption (GJ/m<sup>2</sup>)

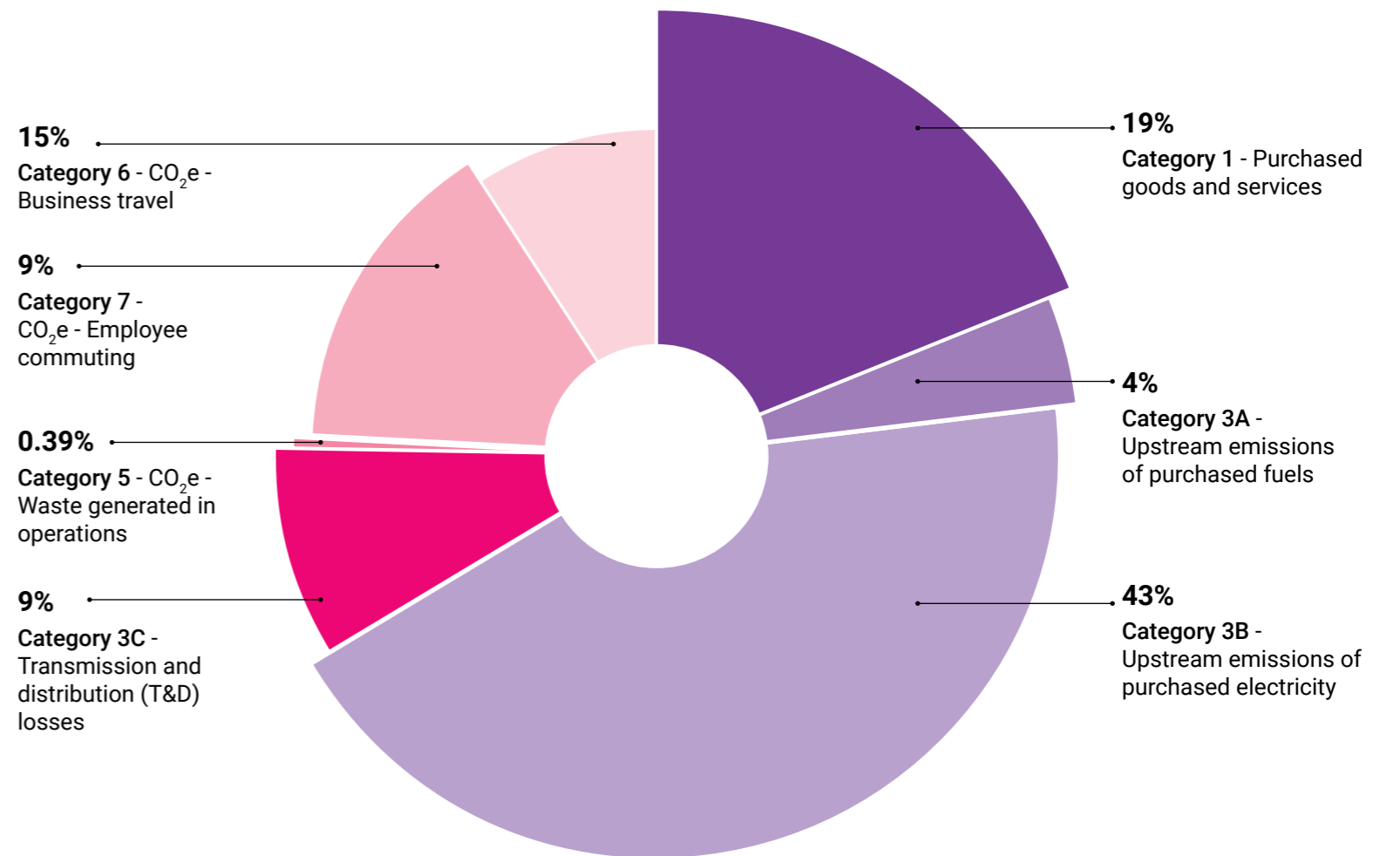


## Scope 3 Emissions

We are working to improve our Scope 3 emissions reporting with the aim of reducing our indirect impacts. Overall, in 2022, our Scope 3 emissions dropped by 2% to 11,792 metric tons of CO<sub>2</sub>e. The main changes versus 2021 were:

- **Reduction (23%)** in upstream emissions from purchased electricity, mainly resulting from our increase in sourcing of renewable electricity. We expect this to continue to decrease as we progress toward our climate target.
- **Increase (18%)** in emissions from purchased goods and services due to the addition of our main contract manufacturers, reaching 99% of contracted supply. We are working with contract manufacturers to identify ways to improve carbon efficiency. We are not yet able to include Scope 3 emissions from the supply of components or other materials and are continuing to explore ways of expanding our reporting in this category. Additionally, we are working to review Scope 3 emissions generated through logistics and transportation of all our products and services.
- **Increase (66%)** in emissions from business travel to support our business expansion following low levels of travel in 2020 and 2021. We are planning to review options to improve low carbon options in business travel over the coming years, for example EV use and EV charging at the office.

### Global Scope 3 Emissions 2022



Learn more about our approach to climate change and environmental efficiencies, see our [Approach to Climate Change and the Environment](#).



# RESOURCE EFFICIENCY IN OUR SUPPLY CHAIN

We aim to use resources efficiently throughout our product lifecycle, starting with product design through to responsible end-of-life management. Our hardware products are designed for long life use and include features that improve the reparability of components, and we maintain continuous spare part availability. We expand the usability of our hardware by adding software components, so that a single hardware component can be used across networks as they expand. Where possible, at end of use, we redeploy hardware from customers back to our sites for reuse by our R&D, Verification and Operations teams

## Reducing Waste

We generate modest amounts of waste through our operations, most of which is non-hazardous and recyclable, such as paper and cardboard used for packaging and electronic waste from our laboratory operations. We aim to minimize internal waste through material reuse, recovery or repurpose. For example, we reuse packaging wherever possible and aim to procure packaging that is sustainably sourced and recyclable.

Examples of action taken to minimize or sustainably manage waste in 2022 include:

- Elimination of plastic bubble wrap, enabled through the procurement of shredders to enable use of cardboard shreds for packaging bulk.
- Removal of single-use water bottles for drinking water and use of compostable cutlery
- Reinforced awareness for employees through training on waste reduction and segregation and new signage at our facilities.
- Ongoing refurbishing and internal reuse of IT hardware.

- Issued a new packaging policy to our suppliers to drive use of sustainable packaging for all material procured in our global supply chain.

To improve our product circularity, we operate a take-back program for electronic waste which allows our customers to know that we will reuse and repair returned hardware in an effort to reduce the remanufacture of parts from older and discontinued product lines and extend the useful life. In 2022, we established a new direct email (WEEE@rbbn.com) to make it easier for customers to place a request to Ribbon for Waste Electrical and Electronic Equipment (WEEE) collection.

## Conserving Water

We aim to use water responsibly and minimize our consumption as far as possible. Water supply for our sites is modest, and drawn from municipal supplies in each country. Water is used for drinking, cleaning and hygiene purposes. We have completed a water risk analysis at our sites around the world and have identified sites in 10 locations that are identified as high water stressed locations. These include:

| India       | Israel         | Europe           | North America         |
|-------------|----------------|------------------|-----------------------|
| ■ Delhi     | ■ Petah Tikvah | ■ Moscow, Russia | ■ Mexico City, Mexico |
| ■ Chennai   | ■ Beer Sheva   | ■ Madrid, Spain  |                       |
| ■ Pune      |                |                  |                       |
| ■ Bengaluru |                |                  |                       |

## Optimizing Logistics

We aim to minimize the environmental impact of our logistics by reducing the travel distance of shipped components between warehouse locations and customer premises and increasing land and sea rather than air shipments: air freight is generally only deployed for last minute deliveries We collaborate with our customers and sales teams for accurate and early forecasting for effective planning of optimal shipment loads. Wherever possible, we aim to source components locally, in the country of the assembly operations, to minimize our inventory and carbon footprint through optimized logistics. We will ship direct from our manufacturing plants wherever possible to reduce the total distance.

In 2022, more than **93%** of our products by weight that were shipped within North America, and more than **85%** of global shipments, were sent overground.

# PRODUCT SUSTAINABILITY

Our design for sustainability approach drives us to constantly examine our products with a lifecycle view to reducing environmental impacts through all phases, including design, material sourcing, manufacturing, use and end-of-life. For example, for over 10 years, we have invested in optimizing our Apollo product platform to deliver higher traffic loading while reducing the power needed for operations.

Data centers are the hubs of the global information economy, operating on a massive scale to store and process information, and receive and respond to requests over the Internet. At the same time, data centers are large users of power to support the operation of multiple racks of computing and communications equipment at cool temperatures. Often reaching areas of thousands of square meters, data centers are estimated to be responsible for up to 3% of global electricity consumption today and are projected to touch 4% by 2030.<sup>1</sup> Driving efficiencies in data center operations is a critical element of reducing greenhouse gas emissions from electricity consumption in our industry and mitigating climate change.

To help address this challenge, Ribbon is continuously power-optimizing its data transport products and optical networking hardware, enabling significant energy savings and greenhouse gas emission avoidance by our customers around the world. For example, our new optical transport platform, Apollo OT9408, is designed specifically for high density and energy efficient data center applications.

Using the latest digital signal processing (DSP) technology, the OT9408 consumes less than 0.12W per gigabyte of data, roughly half the energy consumption of similar solutions within the past three years.



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\* Energy efficiency predictions for data centres in 2023, DataCentre Magazine, <https://datacentremagazine.com/articles/efficiency-to-loom-large-for-data-centre-industry-in-2023>, accessed June 2023.

# GOVERNANCE AND ETHICAL CONDUCT



The Board of Directors at Ribbon takes a keen interest in sustainability matters. We recognize that today's business landscape requires companies to be accountable for their impacts on society and the environment and provide information that helps investors understand how sustainability matters can affect a company's financial performance over the medium and long term. We are supportive of Ribbon's sustainability strategy and engage with the business where needed to help drive improvement.



**Tanya Tamone**  
Director



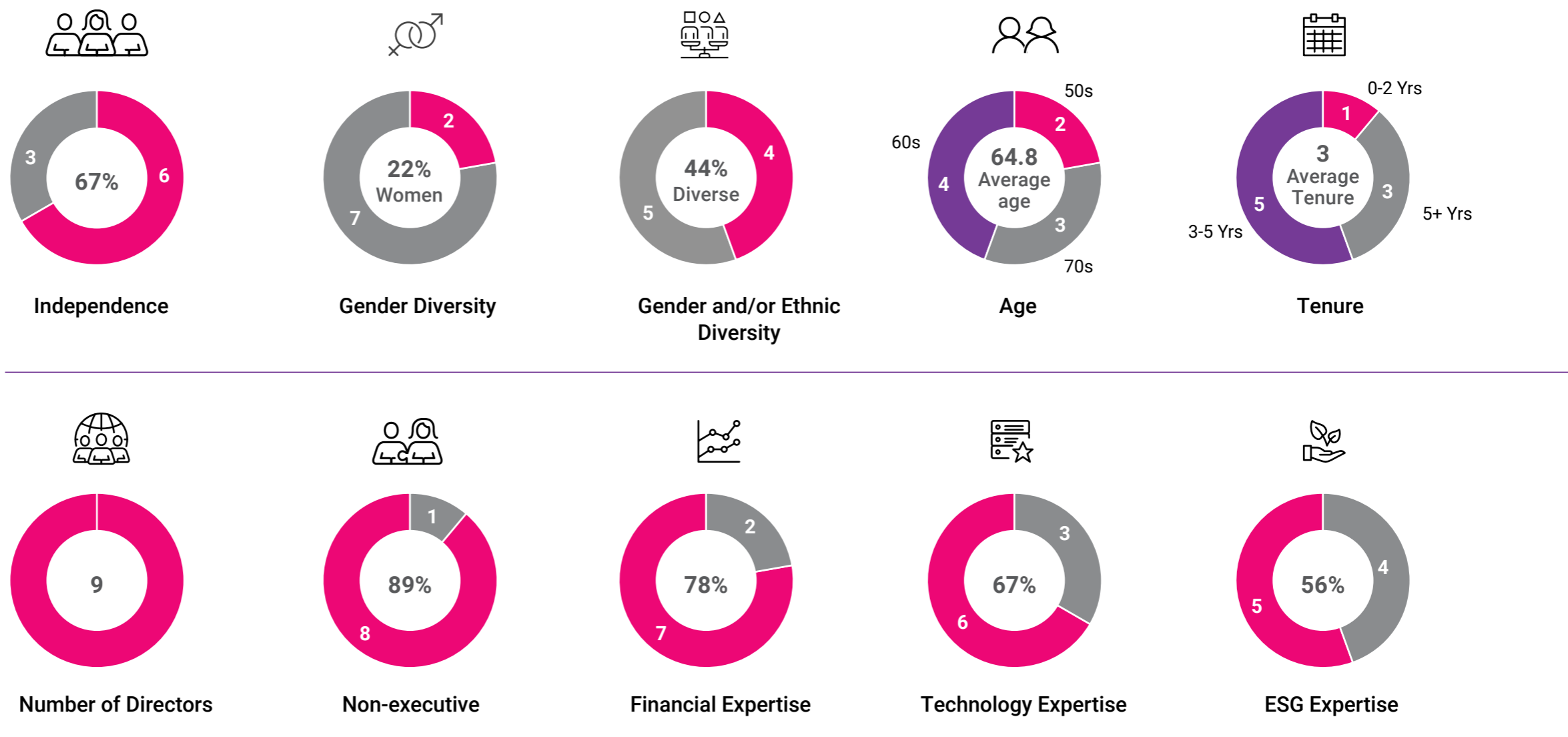
# CORPORATE GOVERNANCE

We are committed to building long-term value and assuring the success of the company for our stockholders and stakeholders, including the employees, customers, suppliers and the communities in which we operate. To help achieve these goals, we maintain sound corporate governance practices and controls.

## Board of Directors

Our Board of Directors is charged with overseeing company performance, compliance programs and procedures and effective risk management as well as providing guidance to the Chief Executive Officer and senior leadership on strategic matters. The Chairman of the Board is Mr. Shaul Shani.

### Ribbon Communications' Board of Directors (year-end, 2022)



## Board committees

Our Board has four standing committees: the Audit Committee; the Compensation Committee; the Nominating and Corporate Governance Committee; and the Technology and Innovation Committee. Each committee is composed entirely of independent directors as defined under applicable rules, including Nasdaq rules. All members of the Audit Committee meet the independence requirements of Rule 10A-3 under the Securities Exchange Act of 1934, as amended, and all members of the Compensation Committee meet the heightened independence requirements for Compensation Committee members under the Nasdaq rules.

## Board engagement on sustainability

Our Board is fully committed to upholding ethical conduct and corporate sustainability. Progress in sustainability is an agenda item at every Nominating & Corporate Governance Committee meeting and the Board reviews our strategy and guides future direction. During the past year, the Board has been a critical partner in reviewing progress against our sustainability strategy, goals and targets.



For more about our Corporate Governance, see:

<https://investors.ribboncommunications.com/corporate-governance/governance-highlights>

For more about our Board of Directors, see:

<https://ribboncommunications.com/company/about-us/board-directors>

## Risk Management

Ribbon's Board of Directors is responsible for assessing the Company's approach to risk management and overseeing management's execution of its responsibilities for identifying and managing risk. Significant strategic risks are overseen and evaluated by the full Board while other risks are overseen by Board committees. In our annual risk assessment process, we review the business impact of risks and assign likelihood and impact scores to risk areas including business continuity, security, privacy, environmental, health and safety, human rights and others. We maintain a risk tracking tool to manage all corporate risk information in a single location allowing risk exposure and mitigation to be reviewed efficiently.

We maintain a centralized, standardized risk documentation process to align risk assessment procedures throughout the company and enable consistent use of our enterprise risk tracking tool across four key management systems and risk areas:

- Business Continuity Management System (BCMS)

- Physical and information security
- Health and safety at our facilities
- Environmental Management System (EMS)

In 2022, we completed several actions to address risk management and mitigation including:

- Multiple detailed reviews with IT and user groups to ensure service list completeness;
- Identification of Single Point of Failure (SPoF) services and required improvements;
- Enhancement to review process to ensure ongoing improvement throughout the year; and
- Discontinuation of multiple services to simplify services and reduce risk exposure.

A priority identified for 2022 is Disaster Recovery Planning (DRP) across our global business. We have more than 50 reviewed DRPs in place to further improve safeguards in this critical risk area.



## Business Continuity

Ribbon actively maintains a Business Continuity Management System (BCMS) to ensure stability of our global operations following a potential disruption or catastrophic event, such as a natural disaster, pandemic, cyber-attack or other similar events within the supply chain. The BCMS defines procedures to limit the impact from the loss of key internal services on our Customer Operations, Services and R&D Programs.

Our BCMS is mandated by Ribbon's Executive Management Team and aligns with the requirements of the ISO 22301:2019 Standard. Each year we perform a Business Impact Assessment (BIA) and conduct quarterly business continuity drills based on relevant catastrophe or disaster scenarios.

Our robust approach to business continuity allows our customers the peace of mind that our operations will continue to function during a disruptive event. We receive many inquiries from our customers about our BCMS and many customers download our BCM certificates each year. In 2022, we continued to optimize and improve business continuity processes including the use of remote platforms and virtual troubleshooting to address ongoing challenges to support our customer needs.

# COMPLIANCE AND ETHICS

Ribbon conducts its business in accordance with the highest ethical standards and in compliance with all applicable governmental laws, rules and regulations in every country in which we operate. Our global programs are designed to ensure compliance throughout our organization while striving to eliminate potential compliance breaches occurring through lack of awareness. We provide compliance training to employees throughout the year, with a strong focus on anti-harassment, anti-discrimination and anti-bribery and corruption. In 2022, Ribbon was not subject to any fines or sanctions related to noncompliance in any area of our business.



Learn more >> [Our Approach to Compliance](#)

## Anti-Corruption

We believe that a zero tolerance for corruption, bribery and any other form of illegal payments is the right approach for every business. Businesses that take a stand against corruption and bribery foster trust among stakeholders, protect themselves from risk and contribute to the development of a fair and orderly society for the benefit of all. Ribbon did not receive any criminal or civil charges alleging corruption or bribery by Ribbon in 2022.



Learn more >> [Our Approach to Anti-Corruption](#)

## Ethical Conduct

Upholding ethical conduct throughout our business is foundational to our ability to create value for our stakeholders. We aim to act in accordance with the principles of integrity, accountability, and fair dealing in all our interactions, which applies without exception to all officers and employees of Ribbon. We expect the

same standards of ethical conduct from those involved in our business—including partners, suppliers and contractors.

### Our Code of Conduct

Our [Code of Conduct](#) is our guide to ethical and lawful behavior and sets clear expectations for all employees. All Ribbon employees are required to complete the Code of Conduct training upon joining the company and again each year. At the end of the annual certification process, employees must certify they agree to continue to abide by the provisions of the Code and respond to survey questions aimed at uncovering ethics concerns. To ensure ethical conduct is always top of mind, Ribbon's Legal Department regularly sends emails to all employees reminding them of our commitment to ethics and of the reporting options available to them. In 2022, 100% of employees completed Code of Conduct initial training or recertification, monitored by our internal audit team.

### Reporting Ethical Breaches

Ribbon employees have a variety of reporting channels available to them to report issues and concerns under

our Code of Conduct. We encourage reporting by employees. Ribbon prohibits retaliation against any employee who reports ethical or other misconduct in good faith. Ribbon received one report alleging acts of bribery by a Ribbon employee in 2021; the report was promptly investigated and appropriate action taken including additional training for all employees in the region where this incident occurred and extra safeguards implemented.

### Human rights

In 2022, we completed a detailed Human Rights Risk Assessment covering Ribbon's direct workforce across our operations globally in order to identify the current level of adherence to human rights practices and procedures and opportunities for improvement. We used the United Nations Development Programme Human Rights Risks in Business Operations guidelines, which align with the United Nations Global Compact Principles. This risk assessment is used as a significant pillar within our annual Global Risk Review and it allows us to ensure we are maintaining our Human Rights obligations and actively working to improve our performance where relevant.

In total, we identified 36 risk areas and relevant risk mitigation controls in each area, and 27 non-critical action items to address opportunities for improvement. These actions are under review and prioritized for action in the coming year. Examples of actions include:

- Ensure all our suppliers have a health and safety management system aligned to ISO 45001
- Ensure our suppliers adhere to our Supplier Code of Conduct
- Identify suppliers in countries with higher risks of child labor and ask them to demonstrate what steps are in place to monitor and stop child labor



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## Information Security

Ribbon's Privacy and Information Security Executive Steering Council (PISEC) comprises experts from all areas of Ribbon operations and guides our overall information security and strategy. Ribbon utilizes industry-leading layered security solutions to prevent, detect and respond to cybersecurity incidents, applying industry best practices for information security and data protection controls. We maintain an information security architecture that includes data risk assessments, vendor risk assessments, contract reviews for both customers and vendors and a regular program of data protection training for Ribbon

employees. We utilize our industry links to understand the worldwide threat discoveries and inform our continuous improvement of key processes covering asset management; access control; vulnerability management; incident response and third party risk management. Our Information Security Team performs frequent cyberbreach assessments and penetration testing and rectifies and detected issues. Certain Ribbon operations are certified to ISO 27001 Information Security Management Quality Standard and undergo annual self-assessments and external audits. In 2022, no major non-conformances were discovered in our ISO 27001 adherence.



Learn more: [Our Approach to Information Security and Data Privacy](#)



Ribbon customers depend upon Ribbon to maintain our operations and networks so that we can support them effectively. We spare no effort to deploy the most advanced information and cyber security protections so that we can ensure our services are always-on and protect our customers, as well as our employees and other users of our information and services.

**Heather Phelps**  
Chief Information Security Officer (CISO), Ribbon



## Data Privacy

Ribbon maintains an active data protection program which continuously monitors compliance to applicable data protection laws and the evolving data protection landscape. Our program focuses on compliance with the EU General Data Protection Regulation (GDPR) through robust data protection policies and practices. We apply these policies across the company, beyond the specific compliance needs in Europe, to create a common standard of privacy supporting Ribbon's compliance with applicable data protection laws around the globe. We pay particular attention in our relationships and interactions with our customers to ensure we have the right systems in place to assure their data privacy across countries. In our product development, we design our systems to enable troubleshooting without compromising privacy or facilitating unauthorized access to data. Overall executive direction of our data protection program resides with Ribbon's Chief Legal Officer who also serves as the Data Protection Officer (DPO) for certain Ribbon entities. Ribbon was not subject to sanctions by data privacy enforcement agencies in 2022.

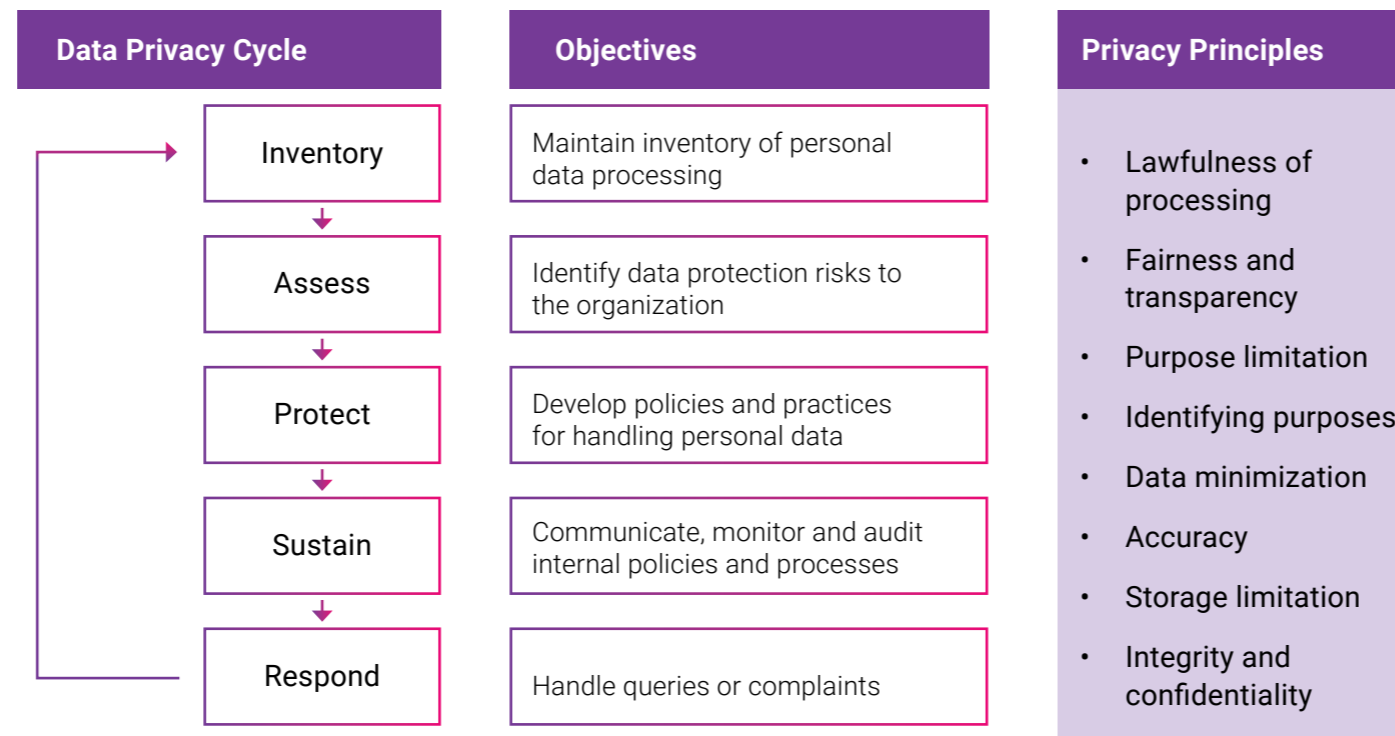
In 2022, we were active in advancing data privacy measures in the following ways:

- 105 data protection assessments executed
- 125 customer data protection related engagements
- 120 supplier data protection related engagements
- 2,360 data protection training units completed by Ribbon employees
- New Data Privacy Officer for Ribbon Canada appointed
- Ribbon's intra-group data protection agreements revised

Ribbon has a global workforce with many privacy regulations to be understood and followed. Employee awareness and education are key drivers to help reduce the incidence of phishing attacks. October is our annual employee cyber awareness month, during which employees complete global cyber training: 96% of employees completed this training in 2022. Additionally, data classification training is provided biennially to all Ribbon employees to ensure global consistency and to understand new local regulation changes.

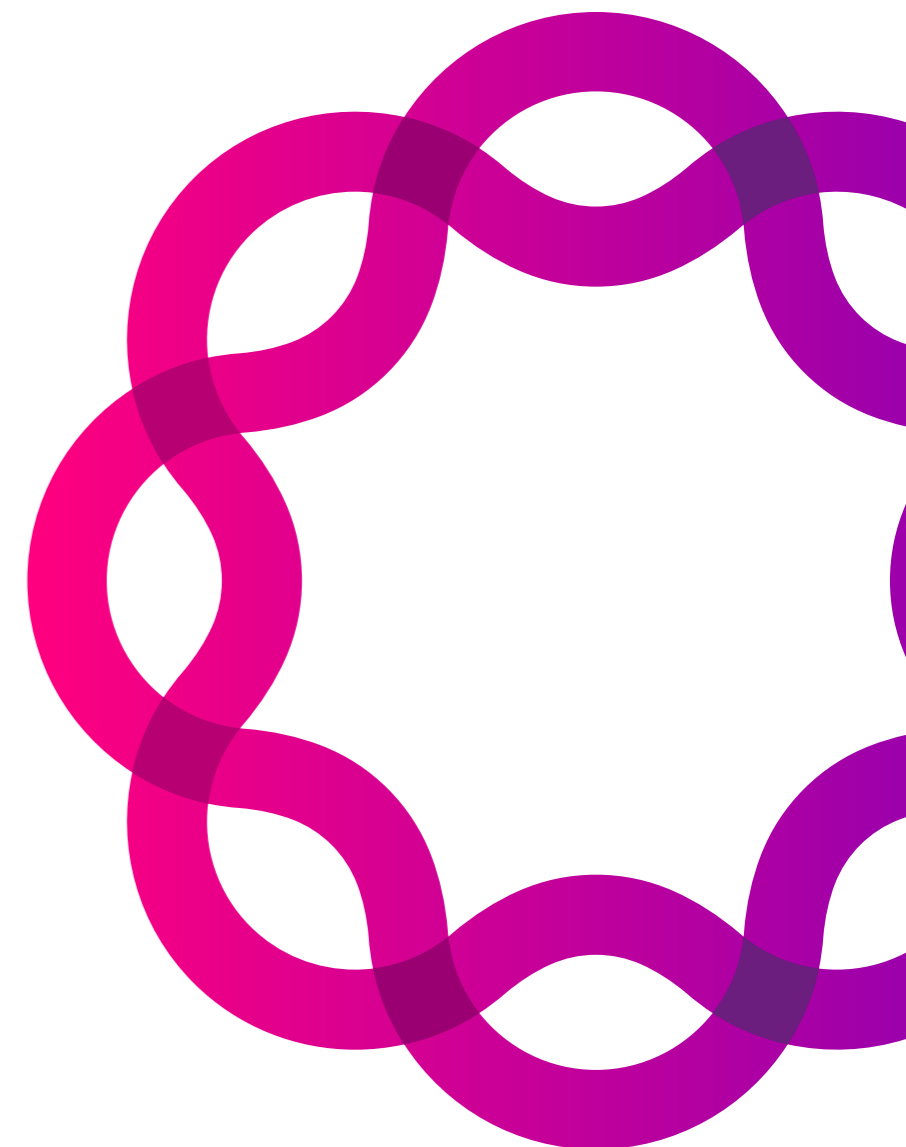
## Data Privacy Lifecycle

Ribbon's data-protection cycle is supported by industry-leading privacy operations platforms and expert toolsets.



## Associations and Certifications

Ribbon is a corporate member of the International Association of Privacy Professionals (IAPP), the largest and most comprehensive global information privacy community and resource. Ribbon counsel and personnel attached to the privacy program are trained in data protection matters including maintenance of certain IAPP privacy professional certifications. Ribbon and several of its affiliated U.S. companies remain [self-certified](#) under the EU-US Privacy Shield and Swiss-US Privacy Shield programs. For more insight regarding Ribbon's approach to data protection and the personal data processed by Ribbon, please see our [Privacy Policy](#).





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# RESPONSIBLE SUPPLY CHAIN

We view our suppliers as critical partners in our ability to deliver our products and services to meet our customers' requirements. We expect them to uphold the standards of ethical conduct, labor and human rights protection and environmental stewardship both in the spirit and to the letter of our [Supplier Code of Conduct \(SCoC\)](#), which is aligned with the [Responsible Business Alliance standard v7.0](#). In 2022, we continued to implement enhanced mechanisms for monitoring supplier conformance to our SCoC as we aim to meet our strategic supply chain target by 2025. Ribbon did not receive any reports of alleged violations of the Ribbon SCoC in 2022.



Learn more >> [Our Approach to Responsible Supply Chain Management](#)

## Our 2025 Supply Chain Target

### Target

By 2025, audit **30%** of our Tier 1 suppliers with actions complete to ensure **100%** adherence to Ribbon's Supplier Code of Conduct.

### Progress in 2022

**14 Tier One suppliers** identified and selected based on extensive engagement across the supply chain. Third party company for supplier auditing selected. Audit program begins in 2023.

**Top 100 suppliers ESG Risk Assessment (percentage by 2022 supplier spend)**

**Low Risk 80%**  
**Medium Risk 15%**  
**High Risk 5%**

Ribbon's extended supply chain includes more than 5,000 active suppliers of goods and services across all our business divisions globally. Of these, we engage third-party manufacturers to build core components. In 2022, the following five contract manufacturers accounted for at least 33% of our total supplier spend and 100% of product manufacturing.

- Eastcom
- Flextronics
- Hawkeye Technologies
- Maysteel Industries
- Sanmina Corporation

We assess our suppliers for risk using an aligned approach that covers all primary ESG parameters including:

- Working conditions and labor rights including employee health and safety
- Environmental compliance and areas of improvement
- Carbon footprint and energy use
- Freshwater usage and water stress at supplier locations
- Waste and responsible disposal methods, and minimization of hazardous waste
- Responsible use of chemicals and substances of concern
- Material efficiencies, especially in packaging and logistics

- Responsible sourcing including conflict minerals
- Business continuity plans and disaster preparedness

In 2022, following supplier-specific, tailored questionnaires to more than half of our priority suppliers that we issued in 2021 with an 83% response rate, we continued to engage with unresponsive suppliers and others to improve our understanding of our supply base. We further analyzed external ratings and scores of 67% of our critical suppliers, representing more than \$380 million in annual spend, and prioritized a selection of suppliers for external third party auditing to our SCoC that may include onsite auditing.

The key areas of concern arising from our engagement with suppliers include

- Evidence of emergency preparedness evidence
- Improved disclosure of workforce human rights data
- Energy and water reduction strategies
- Valid certifications to ISO Standards

In 2023, we expect to seek further evidence of our Supplier Code of Conduct compliance from 14 Tier One suppliers, and we plan to use a third party expert to audit a selection of these suppliers on our behalf on a phased basis in the coming years.

## World-Class Quality

Ribbon is committed to complying with applicable environmental legislation and regulations in all countries. A selection of our main regulatory obligations includes:

- Restriction of Hazardous Substances (RoHS/ RoHS II/RoHS 3 Directives) in Europe and RoHS in China
- Waste Electrical and Electronic Equipment (WEEE) directive in Europe
- CE Marking designation – indicating compliance with EU legislation
- Batteries Directive – governing composition and disposal
- Packaging Directive - governing composition and disposal
- International Standards for Phytosanitary Measures No. 15 (ISPM 15)
- IEC 62368-1 Safety Standards for ICT and AV Equipment

We also voluntarily certify our key sites to several quality management standards and aim to apply the same standards to operations at non-certified sites.

### Our Certifications:

- **ISO 9001**:2015: Quality Management System (QMS)
- **ISO 14001**:2015: Environmental Management System (EMS)
- **ISO 17025**:2015: Laboratory Testing Competency
- **ISO 27001**:2013: Information Security Management System (ISMS)
- **ISO 22301**:2019: Business Continuity Management System (BCMS) – our Business Continuity Management program is aligned to this standard but not certified
- **ISO 45001**:2018: Safety Management System
- **TL 9000**: R6.3/5.7: Quality Management System standard designed by the TIA / QuEST Forum
- **SI 10000**:2013: Social Responsibility (Israeli Standard) covering our sites in Israel (based on ISO 26000:2010)

## Conflict Minerals

We aim to source components and materials from companies that share our values regarding environmental responsibility, ethical conduct and respect for human rights, including sourcing of conflict-free minerals. We maintain systems to investigate the sources of 3TG minerals (tin, tungsten, tantalum and gold) with an aim of ensuring that conflict minerals do not enter our supply chain.

In 2022, Ribbon contacted 805 in-scope suppliers (excluding distributors and service providers) of Ribbon products with a request to provide information about their use and exposure to conflict minerals. Information obtained from suppliers enabled further investigation to identify conflict minerals risk in our extended supply chain. We work to engage suppliers who have not responded in order to complete our overall conflict minerals risk exposure.



See our [Conflict Minerals Policy](#) and our [2022 Conflict Minerals Report on Form SD](#).

**78%** of in-scope suppliers provided responses to our conflict minerals survey.

Over the years, the pool of in-scope suppliers engaged by Ribbon has expanded as Ribbon's business has grown. Ribbon's ability to secure responses from a greater number of suppliers is the result of consistent efforts to work effectively with suppliers to gain the required information. As a result, we have seen an improvement the rate of response in the past five years, giving us confidence that we are improving our control over conflict minerals elimination from our supply chain.



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# ABOUT THIS REPORT

This is Ribbon Communications' fourth annual Sustainability Report, presenting our global operations. In this report, we share the ways in which Ribbon makes a positive contribution to the economy, the environment and people through our core business, and account for our environmental, social and governance (ESG) performance through 2022.

Data in this report relate to the 2022 calendar year and prior years where noted. The report includes examples of practice and operational updates through 2022. Our last Sustainability Report covered reporting year 2021 and was published in October 2022. This report is published in July 2023. The scope of information in this report includes global business operations owned and operated by Ribbon, unless otherwise stated, and aligns with the scope of our annual reporting on Form 10-K. For our Annual Report on Form 10-K, please see: <https://investors.ribboncommunications.com/static-files/88b0096b-106e-4e68-a6ec-018820c50fdd>

This report was prepared in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standards. The selection of content for this report was informed by a robust stakeholder analysis and assessment of material topics conducted in early 2021, which remain relevant in the current reporting period. The report Appendix also includes our disclosure in line with the Sustainability Accounting Standards Board (SASB) Technology Hardware Standard and an overview of our climate change impacts using the Taskforce on Climate-related Financial Disclosures (TCFD) framework. These disclosures can be found in the Appendix of this report.

The data in this report was not verified by an independent third party. We believe our data monitoring and tracking is robust and is confirmed through internal checks, audits and quality certifications by third parties.

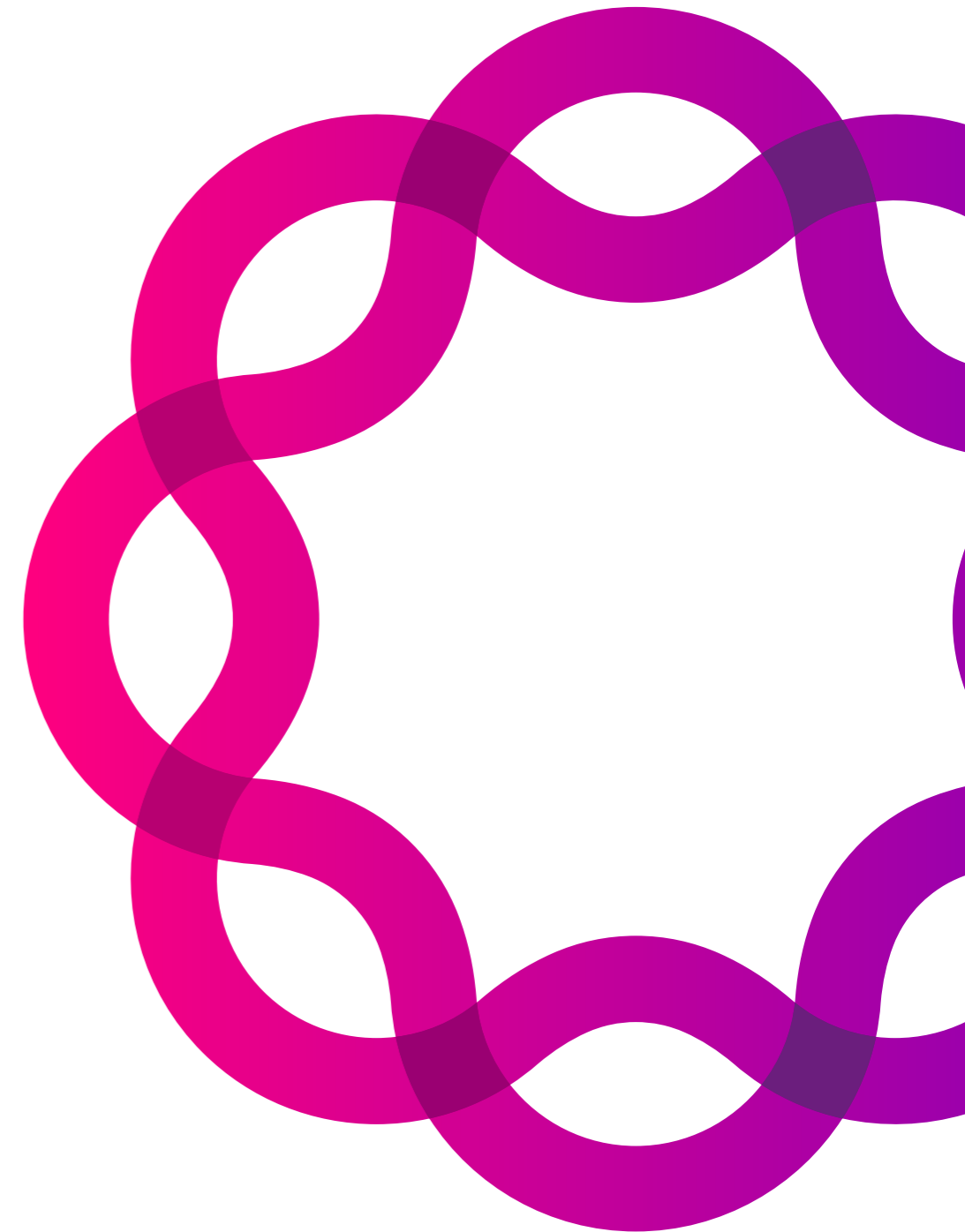
Data and information in this report may differ from information published in Ribbon's Annual Report, due to the different nature of disclosures and methodologies. In such cases, for regulatory disclosure requirements, the Annual Report takes precedence. In the event of any perceived discrepancy, or any other query or observation, as well as for any feedback or suggestions, we invite you to contact us.

Please write to:

**Brian Green**

Global Sustainability

[sustainability@rbbn.com](mailto:sustainability@rbbn.com)



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**5G:** This is the next generation wireless network technology that will transform how we use the internet. 5G will deliver unprecedented scale and speed, enabling entirely new ways of living, working, consuming entertainment and connecting with others, from telehealth to electric mobility, to smart cities, to remote working and much, much more. 5G requires a step-change in network architecture and infrastructure. Networks around the world are currently preparing for 5G and it is expected to roll out over the next 3-5 years.

**DWDM (Dense Wavelength Division Multiplexing):** This is an optical multiplexing technology that enhances bandwidth over fiber networks by generating virtual fibers, therefore magnifying the capacity of the physical channel.

**IoT (Internet of Things):** A system whereby all devices (with an on/off switch) can be connected to the Internet and to other devices to create instant information and potential automation of many routine decisions.

**IP (Internet Protocol):** These are the rules for routing and addressing packets of data so that they can travel across networks and arrive at the correct destination. Data traversing the internet is divided into smaller pieces, called packets.

**IP Optical Networking:** An integrated, multi-layer system that combines IP routing and optical transport technology for optimum efficiency.

**Latency:** This is how the industry refers to the time it takes for a data packet to travel from one designated point to another. Very low latency – our objective – means that the time is shorter, so communications are faster.

**LTE (Long-Term Evolution):** In most countries, mobile data communications are carried on systems supporting the 4G LTE standard. These systems allow for the latest in high-speed data for mobile phones and other mobile devices for streaming voice calls, video, and data from social media and streaming services. Mobile phone industry standards often use Voice over LTE (VoLTE) for delivering voice as a data stream within the LTE data transmission.

**Network slicing:** Network slicing allows a network operator to provide dedicated virtual networks with functionality specific to the service or customer over a common network infrastructure. Network slicing is a necessary option to support the numerous and varied services envisioned in 5G.

**NTr (Network Transformation):** This describes the process of conversion of current physical network hardware and infrastructure to virtualized networks and adoption of cloud services and functions to enable accelerated and enhanced connectivity around the world.

**OTN Switching (Optical Transport Networking Switching):** This is the technology that enables the transmission of data at higher speeds based on wavelength division multiplexing technology. It is particularly useful for long-haul data transmission.

**Robocalling:** Robocalling has emerged over the past few years quite extensively

and refers to telephone calls from an automated source that deliver a prerecorded message. Robocalls are typically delivered simultaneously to large numbers of people. While there are positive uses for robocalling, such as emergency calls or public service announcements, the downsides are troublesome: harassment, spoof calls, scams, threats and fraud, and these must be mitigated.

**REN (Research and Education Network):** Specialized Internet service dedicated to supporting the needs of the research and education communities within a region or country, usually built with a high-speed backbone network, often offering dedicated channels for individual research projects.

**RTC (Real-time Communications):** RTC includes phone calls, video conferencing, chat, text messaging, desktop sharing, and team collaboration.

**SBC (Session Border Controller):** A communications element that ensures RTC traffic is properly routed between network providers, ensuring differing protocols are understood so that calls can be delivered across different networks securely. An SBC secures and controls a SIP network by admitting (or not admitting) and then directing communications between two end devices on the network, such as a VoIP call between two phones or a video conference between multiple devices. SBCs are deployed at the network perimeter so they can control and secure real-time communication sessions for both enterprises and service providers.

**SIP (Session Initiation Protocol):** The primary protocol that establishes the connection between two endpoints and closes the connection when the call is finished.

**Software Defined Networking (SDN):** An architecture designed to make a network more flexible and easier to manage through flexible and adaptable software controls.

**STIR/SHAKEN:** This stands for Secure Telephone Identity Revisited (STIR) and Signature-based Handling of Asserted Information Using toKENs (SHAKEN). STIR/SHAKEN references a framework of standards that improve call security by authenticating caller IDs.

**Streaming:** This refers to transmitting or receiving data (especially video and audio material) over a computer network as a steady, continuous flow, allowing playback to start while the rest of the data is still being received. Streaming is possible with high-speed connections and low latency.

**VoIP (Voice over Internet Protocol):** A system that allows users to make voice calls using the internet, rather than a telephone landline.

**WDM (Wavelength Division Multiplexing):** A technology which loads a number of optical carrier signals onto a single optical fiber by using different wavelengths, enabling bidirectional communications over a single strand of fiber,

**x-haul:** Typically associated with the new 5G networks, x-haul is the ability to transport data from different points in the data transport network backwards or forwards to give maximum speed, flexibility and utilization of bandwidth.

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|--|--|
| <b>Statement of use</b>                  | Ribbon Communications has reported in accordance with the GRI Standards for the period January 1, 2022 to December 31, 2022. |
| <b>GRI 1 used</b>                        | GRI 1: Foundation 2021   |
| <b>Applicable GRI Sector Standard(s)</b> | None   |

| <b>GRI 2: General Disclosures 2021</b>   | <b>Location</b>                                 | <b>Omission</b>  |
|--|---|--|
| 2-1 Organizational details   | page 6  |  |
| 2-2 Entities included in the organization's sustainability reporting             | page 44   |  |
| 2-3 Reporting period, frequency and contact point                                | page 44   |  |
| 2-4 Restatements of information  | page 52   |  |
| 2-5 External assurance   | page 44   |  |
| 2-6 Activities, value chain and other business relationships                     | page 6-7  |  |
| 2-7 Employees  | page 49   |  |
| 2-8 Workers who are not employees  | page 49   |  |
| 2-9 Governance structure and composition   | page 36-37                                      |  |
| 2-10 Nomination and selection of the highest governance body                     | page 36-37                                      |  |
| 2-11 Chair of the highest governance body  | page 36-37                                      |  |
| 2-12 Role of the highest governance body in overseeing the management of impacts | <a href="#">Our Approach to ESG Governance</a>  |  |
| 2-13 Delegation of responsibility for managing impacts                           | <a href="#">Our Approach to ESG Governance</a>  |  |
| 2-14 Role of the highest governance body in sustainability reporting             | <a href="#">Our Approach to ESG Governance</a>  |  |
| 2-15 Conflicts of interest   | <a href="#">2023 Proxy Statement page 18</a>    |  |
| 2-16 Communication of critical concerns  | Not reported                                    | This information is considered sensitive/confidential. |
| 2-17 Collective knowledge of the highest governance body                         | page 36-37                                      |  |
| 2-18 Evaluation of the performance of the highest governance body                | Not reported                                    | This information is considered sensitive/confidential. |
| 2-19 Remuneration policies   | <a href="#">2023 Proxy Statement page 38-52</a> |  |
| 2-20 Process to determine remuneration   | <a href="#">2023 Proxy Statement page 38-52</a> |  |
| 2-21 Annual total compensation ratio   | <a href="#">2023 Proxy Statement page 62</a>    |  |
| 2-22 Statement on sustainable development strategy                               | page 3  |  |
| 2-23 Policy commitments  | <a href="#">Global ESG Positions</a>            |  |
| 2-24 Embedding policy commitments  | <a href="#">Our Approach to ESG Governance</a>  |  |
| 2-25 Processes to remediate negative impacts                                     | <a href="#">Our Approach to Human Rights</a>    |  |
| 2-26 Mechanisms for seeking advice and raising concerns                          | page 38   |  |
| 2-27 Compliance with laws and regulations  | <a href="#">Our Approach to Compliance</a>      |  |
| 2-28 Membership associations   | page 49   |  |
| 2-29 Approach to stakeholder engagement  | page 49   |  |
| 2-30 Collective bargaining agreements  | page 50   |  |
| <b>GRI 3: Material Topics 2021</b>   | <b>Location</b>                                 | <b>Omission</b>  |
| 3-1 Process to determine material topics   | <a href="#">Our Approach to Materiality</a>     |  |
| 3-2 List of material topics  | <a href="#">Our Approach to Materiality</a>     |  |

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| Material Priority                               | GRI Standards                                | GRI Topic-Specific Disclosures |   | Location / Response  | Omissions |
|---|--|--------------------------------|---|--|-----------|
| <b>Business ethics</b>                          | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | page 38  |           |
|   | GRI 205: Anti-Corruption 2016                | 205-3                          | Confirmed incidents of corruption and actions taken   | None   |           |
|   | GRI 419: Socioeconomic Compliance 2016       | 409-1                          | Non-compliance with laws and regulations in the social and economic area                                      | pages 38-39  |           |
| <b>GHG emissions &amp; reductions</b>           | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | <a href="#">Our Approach to Climate Change and the Environment</a> |           |
|   | GRI 302: Energy 2016                         | 302-1                          | Energy consumption within the organization  | page 51  |           |
|   |  | 302-3                          | Energy intensity  | page 51  |           |
|   | GRI 305: Emissions 2016                      | 305-1                          | Direct (Scope 1) GHG emissions  | page 52  |           |
|   |  | 305-2                          | Energy indirect (Scope 2) GHG emissions   | page 52  |           |
|   |  | 305-3                          | Other indirect (Scope 3) GHG emissions  | page 52  |           |
|   |  | 305-4                          | GHG emissions intensity   | page 53  |           |
| <b>Cybersecurity &amp; information security</b> | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | page 39  |           |
|   | Ribbon Indicator                             |                                | ISO 27001 certification   | page 39  |           |
| <b>Access to connectivity</b>                   | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | <a href="#">Our Approach to Digital Inclusion</a>                  |           |
|   | GRI 203: Indirect economic impacts 2016      | 203-2                          | Significant indirect economic impacts   | pages 12-17  |           |
| <b>Sustainable products</b>                     | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | page 34  |           |
|   | GRI 302: Energy 2016                         | 302-5                          | Reductions in energy requirements of products and services  | page 34  |           |
| <b>Diversity, equity and inclusion</b>          | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | page 23  |           |
|   | GRI 405: Diversity and Equal Opportunity     | 405-1                          | Diversity of governance bodies and employees  | page 57  |           |
| <b>Employee engagement</b>                      | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | page 19  |           |
|   | GRI 401: Employment 2016                     | 401-1                          | New employee hires and turnover   | page 55  |           |
| <b>Occupational health &amp; safety</b>         | GRI 3: Material Topics 2021                  | 3-3                            | Management of material topics   | <a href="#">Our Approach to Health, Safety and Wellbeing</a>       |           |
|   | GRI 403: Occupational Health and Safety 2018 | 403-1                          | Occupational health and safety management system  | page 56  |           |
|   |  | 403-2                          | Hazard identification, risk assessment, and incident investigation  | page 56  |           |
|   |  | 403-3                          | Occupational health services  | page 56  |           |
|   |  | 403-4                          | Worker participation, consultation, and communication on occupational health and safety                       | page 56  |           |
|   |  | 403-5                          | Worker training on occupational health and safety   | page 56  |           |
|   |  | 403-6                          | Promotion of worker health  | page 56  |           |
|   |  | 403-7                          | Prevention and mitigation of occupational health and safety impacts directly linked by business relationships | page 56  |           |
|   |  | 403-8                          | Workers covered by an occupational health management system   | page 56  |           |
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| Material priority                              | GRI Standard                             |         | GRI Topic-Specific Disclosures   | Location / Response                               | Omissions                   |
|--|--|---------|--|---|-----------------------------|
| <b>Data privacy management</b>                 | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | page 39   |                             |
|  | GRI 418: Data privacy 2016               | 418-1   | Substantiated complaints concerning breaches of customer privacy and losses of customer data | page 39   |                             |
| <b>Employee training and development</b>       | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | page 21   |                             |
|  | GRI 404: Training and Education          | 404-1   | Average hours of training per employee   | page 57   | Gender split not available. |
|  |  | 404-2   | Programs for upgrading employee skills and transition assistance programs                    | page 21   |                             |
| 404-3  | Employees receiving performance reviews  | page 57 |  |   |                             |
| <b>Digital inclusion</b>                       | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | <a href="#">Our Approach to Digital Inclusion</a> |                             |
|  | GRI 203: Indirect economic impacts 2016  | 203-2   | Significant indirect economic impacts  | page 17   |                             |
| <b>Advanced technologies &amp; innovations</b> | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | page 12   |                             |
|  | GRI 203: Indirect economic impacts 2016  | 203-2   | Significant indirect economic impacts  | pages 12-13                                       |                             |
| <b>Responsible supply chain management</b>     | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | page 41   |                             |
|  | GRI 414: Supplier Social Assessment 2016 | 414-1   | New suppliers that were screened using social criteria                                       | page 41   |                             |
| <b>Business continuity &amp; recovery</b>      | GRI 3: Material Topics 2021              | 3-3     | Management of material topics  | page 37   |                             |
|  | Ribbon Indicator                         |         | ISO certification 22301:2019   | page 42   |                             |
| <b>Water*</b>                                  | GRI 303: Water 2018                      | 303-1   | Interactions with water as a shared resource   | page 53   |                             |
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| <b>Community*</b>                              | GRI 413: Local Communities 2016          | 413-1   | Operations with local community engagement   | page 26   |                             |

\* Not identified as material for Ribbon.



## 2-7 Employees

| Employees by region, gender and contract | 2020       |              |              | 2021       |              |              | 2022       |              |              |
|--|------------|--------------|--------------|------------|--------------|--------------|------------|--------------|--------------|
|  | Women      | Men          | All          | Women      | Women        | All          | Women      | Men          | All          |
| North America                            | 221        | 926          | 1,147        | 196        | 807          | 1,003        | 184        | 759          | 943          |
| EMEA                                     | 254        | 840          | 1,094        | 245        | 813          | 1,058        | 245        | 811          | 1,056        |
| ASIA                                     | 313        | 1,104        | 1,417        | 360        | 1,156        | 1,516        | 319        | 957          | 1,276        |
| LATAM                                    | 16         | 107          | 123          | 21         | 100          | 121          | 24         | 95           | 119          |
| <b>All employees</b>                     | <b>804</b> | <b>2,977</b> | <b>3,781</b> | <b>822</b> | <b>2,876</b> | <b>3,698</b> | <b>772</b> | <b>2,622</b> | <b>3,394</b> |
| <b>Percentage full time contracts</b>    | <b>94%</b> | <b>99%</b>   | <b>99%</b>   | <b>94%</b> | <b>99%</b>   | <b>98%</b>   | <b>95%</b> | <b>98%</b>   | <b>97%</b>   |
| <b>Percentage permanent contracts</b>    | <b>98%</b> | <b>100%</b>  | <b>99%</b>   | <b>99%</b> | <b>99%</b>   | <b>99%</b>   | <b>99%</b> | <b>99%</b>   | <b>99%</b>   |

**Notes:** Employee data represents headcount, year-end. Full time is equivalent to >30 hours per week.

## 2-8 Workers who are not employees

As at end 2022, 1,380 workers who were not employees were engaged in work for Ribbon across more than 80 small and large office locations. These individuals performed work in the areas of security, cleaning, catering and other activities.

## 2-28: Membership of associations

Around the world, Ribbon plays a role in several associations including the Telecommunications Industry Association (TIA). See our website for a list of industry organizations in which Ribbon participates: <https://ribboncommunications.com/partners/industry-organizations>

## 2-29 Approach to stakeholder engagement

See [Our Approach to Stakeholder Engagement](#).

We categorize our stakeholders in 10 clusters (in alphabetical order):

- **Capital Markets:** including banks, financiers, investors and investment analysts, and rankers and raters of ESG performance
- **Communities:** including local communities, resident associations, and local interest groups
- **Customers:** including all different customer categories and sales channel partners

- **Employees:** including current and potential employees, employee families and retirees, and employee representatives
- **Financers:** including banks, insurance agencies and financial service providers
- **Industry:** including peers, industry associations, industry opinion leaders and standard setters
- **Influencers:** including sustainability standard setters, global or national sustainability organizations, corporate responsibility opinion leaders, UN and international institutions, media and social media
- **Regulators:** including national government and local municipalities and licensing authorities
- **Society and Planet:** including Non-Governmental Organizations, non-profits, humanitarian, human rights and environmental organizations and academia
- **Suppliers:** including suppliers, vendors, contract manufacturers and relevant supplier associations

## Key topics and concerns raised

| Stakeholder        | Key topics raised  | Nature of engagement  |
|--------------------|--|---|
| Capital Markets    | Compliance, ESG disclosure   | Investor meetings, analyst questionnaires                               |
| Communities        | Local economic impact and support  | Community engagement, volunteering events                               |
| Customers          | Value, quality, service, innovation, ethical conduct, sustainability             | Meetings, ESG questionnaires  |
| Employees          | Clear strategy, career opportunities, recognition and appreciation               | Meetings, CEO visits, engagement and pulse surveys, performance reviews |
| Financers          | Compliance, sound financial performance  | Meetings  |
| Industry           | Collaboration, active support for technology development and industry reputation | Working groups, industry meetings and events                            |
| Influencers        | Sustainability performance, ESG disclosure,                                      | Meetings, presentations, conferences                                    |
| Regulators         | Compliance, ESG disclosure   | As needed   |
| Society and Planet | Sustainability strategy and performance, engagement on key issues                | Meetings as needed, conferences and events, response to queries         |
| Suppliers          | Fair dealing, opportunity to grow, clear requirements and feedback               | Meetings, business reviews, industry events                             |

## 2-30: Collective bargaining agreements

| Employees covered by collective bargaining agreements | 2020       | 2021       | 2022       |
|---|------------|------------|------------|
| North America   | 1          | 1          | 1          |
| EMEA  | 643        | 652        | 660        |
| ASIA  | 0          | 0          | 0          |
| LATAM   | 12         | 13         | 13         |
| <b>All employees</b>                                  | <b>656</b> | <b>666</b> | <b>674</b> |
| <b>Percentage of total employees</b>                  | <b>17%</b> | <b>18%</b> | <b>20%</b> |

## Note to energy and emissions data compilation

- Energy and emissions data covers all Ribbons sites operational in 2022 with a population of more than 25 employees approximately. Sites with fewer employees are smaller sales offices and we do not closely track consumption or usage. In general, this represents approximately 80% of our employees. In 2022, we added 5 locations, increasing resource usage in energy and other environmental values to our overall performance in absolute terms. Ribbon's operational sites change from year to year as customer demand changes and we relocate operations to deliver efficiencies.
- We apply an operational control basis.
- Energy conversion factors apply UK Government GHG Conversion Factors for Company Reporting for each reporting year.
- Emissions conversion factors use International Energy Agency (IEA) factors for electricity generation by country by year with trade adjustments applied. We report CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> factors supplied by IEA.
- Market based emissions are applied in locations where we have certified renewable energy sources.
- Scope 3 emissions cover several categories. Business travel (flights) emissions are reported to us by our global travel vendors. Employee commuting is based on kilometer/passenger calculations at each site and converted using IEA private vehicle emission factors. Purchased goods and services are reported by our contract manufacturers for resources used specifically for Ribbon's business.
- MT refers to metric tons.
- YOY means year-on-year, a comparison with prior year performance.

### 302-1: Energy consumption within the organization

| Energy Type                                  | Units     | 2018           | 2019           | 2020           | 2021           | 2022           | YOY         |
|--|-----------|----------------|----------------|----------------|----------------|----------------|-------------|
| Natural gas                                  | GJ        | 16,724         | 25,131         | 22,808         | 26,596         | 26,788         | 1%          |
| Diesel                                       | GJ        | 1,619          | 466            | 613            | 1,178          | 1,011          | -14%        |
| Gasoline                                     | GJ        | 16,121         | 1,080          | 1,208          | 12,596         | 10,160         | -19%        |
| LPG/Propane                                  | GJ        | 0              | 0              | 0              | 4              | 3              | -17%        |
| <b>Total Scope 1 energy: gases and fuels</b> | <b>GJ</b> | <b>34,464</b>  | <b>26,677</b>  | <b>24,628</b>  | <b>40,374</b>  | <b>37,963</b>  | <b>-6%</b>  |
| Purchased electricity                        | GJ        | 179,426        | 186,021        | 187,702        | 204,490        | 164,005        | -20%        |
| Renewable electricity purchased              | GJ        | 2,574          | 3,427          | 3,123          | 3,068          | 20,244         | 560%        |
| <b>Total Scope 2 energy: electricity</b>     | <b>GJ</b> | <b>182,000</b> | <b>189,449</b> | <b>190,825</b> | <b>207,558</b> | <b>184,249</b> | <b>-11%</b> |
| <b>Total energy consumption</b>              | <b>GJ</b> | <b>216,464</b> | <b>216,125</b> | <b>215,453</b> | <b>247,932</b> | <b>222,212</b> | <b>-10%</b> |

### 302-3: Energy intensity

| Intensity by type                           | Units                   | 2018          | 2019          | 2020          | 2021          | 2022          | YOY        |
|---|-------------------------|---------------|---------------|---------------|---------------|---------------|------------|
| Scope 1 Fuels and gases                     | GJ/employee             | 12.35         | 9.37          | 7.70          | 11.74         | 11.15         | -5%        |
| Scope 2 Electricity                         | GJ/employee             | 65.23         | 66.52         | 59.63         | 60.37         | 54.13         | -10%       |
| <b>Total energy intensity/employee</b>      | <b>GJ/employee</b>      | <b>77.59</b>  | <b>75.89</b>  | <b>67.33</b>  | <b>72.12</b>  | <b>65.28</b>  | <b>-9%</b> |
| Scope 1 Fuels and gases                     | GJ/m <sup>2</sup>       | 0.629         | 0.325         | 0.251         | 0.373         | 0.412         | 11%        |
| Scope 2 Electricity                         | GJ/m <sup>2</sup>       | 3.32          | 2.31          | 1.94          | 1.92          | 2.00          | 4%         |
| <b>Total energy intensity/m<sup>2</sup></b> | <b>GJ/m<sup>2</sup></b> | <b>3.95</b>   | <b>2.63</b>   | <b>2.19</b>   | <b>2.29</b>   | <b>2.41</b>   | <b>5%</b>  |
| Scope 1 Fuels and gases                     | GJ/\$M                  | 59.636        | 47.374        | 29.187        | 47.782        | 46.297        | -3%        |
| Scope 2 Electricity                         | GJ/\$M                  | 314.93        | 336.43        | 226.15        | 245.64        | 224.69        | -9%        |
| <b>Total energy intensity/\$Million</b>     | <b>GJ/\$M</b>           | <b>374.57</b> | <b>383.81</b> | <b>255.34</b> | <b>293.43</b> | <b>270.99</b> | <b>-8%</b> |

### 305-1: Direct (Scope 1) GHG emissions

| Scope 1 - Gases and fuels            | Units                     | 2018          | 2019          | 2020          | 2021          | 2022          | YOY        |
|--------------------------------------|---------------------------|---------------|---------------|---------------|---------------|---------------|------------|
| Natural gas                          | MT CO <sub>2</sub> e      | 959           | 1,283         | 1,165         | 1,353         | 1,363         | 1%         |
| Diesel                               | MT CO <sub>2</sub> e      | 198           | 26            | 24            | 32            | 24            | -25%       |
| Gasoline                             | MT CO <sub>2</sub> e      | 2,762         | 70            | 77            | 804           | 649           | -19%       |
| LPG/Propane                          | MT CO <sub>2</sub> e      | 0             | 1.07          | 0.43          | 0.25          | 0.21          |            |
| <b>Total Scope 1 GHG emissions</b>   | <b>MT CO<sub>2</sub>e</b> | <b>3,919</b>  | <b>1,381</b>  | <b>1,267</b>  | <b>2,190</b>  | <b>2,036</b>  | <b>-7%</b> |
| Scope 2 - Electricity                | Units                     | 2018          | 2019          | 2020          | 2021          | 2022          | YOY        |
| Purchased electricity market based   | MT CO <sub>2</sub> e      | 21,641        | 19,135        | 19,053        | 20,935        | 15,988        | -24%       |
| Renewable electricity purchased      | MT CO <sub>2</sub> e      | 309           | 336           | 274           | 299           | 3,757         | 1156%      |
| <b>Total Scope 2 GHG emissions</b>   | <b>MT CO<sub>2</sub>e</b> | <b>21,950</b> | <b>19,471</b> | <b>19,327</b> | <b>21,235</b> | <b>19,745</b> | <b>-7%</b> |
| <b>Total Scope 1+2 GHG emissions</b> | <b>MT CO<sub>2</sub>e</b> | <b>25,869</b> | <b>20,852</b> | <b>20,593</b> | <b>23,424</b> | <b>21,781</b> | <b>-7%</b> |
| Scope 1+2 Market based               | MT CO <sub>2</sub> e      | 25,869        | 20,852        | 20,593        | 23,424        | 21,781        | -7%        |
| Scope 1+2 Location based             | MT CO <sub>2</sub> e      | 22,109        | 23,677        | 24,380        | 23,774        | 22,576        | -5%        |

### 305-2: Energy indirect (Scope 2) GHG emissions

### 305-3: Other indirect (Scope 3) GHG emissions

| Scope 3 - Emissions  | Units                     | 2018         | 2019          | 2020         | 2021          | 2022          | YOY         |
|--|---------------------------|--------------|---------------|--------------|---------------|---------------|-------------|
| Category 1 - Purchased goods and services                      | MT CO <sub>2</sub> e      | -            | -             | -            | 1,832         | 2,167         | 18%         |
| Category 3A - Upstream emissions of purchased fuels            | MT CO <sub>2</sub> e      | -            | 192           | 178          | 464           | 420           | -9%         |
| Category 3B - Upstream emissions of purchased electricity      | MT CO <sub>2</sub> e      | -            | 3,947         | 3,713        | 6,386         | 4,916         | -23%        |
| Category 3C - Transmission and distribution (T&D) losses       | MT CO <sub>2</sub> e      | -            | 1,702         | 1,677        | 1,816         | 1,155         | -36%        |
| Category 5 - CO <sub>2</sub> e - Waste Generated in Operations | MT CO <sub>2</sub> e      | -            | 75            | 45           | 51            | 44            | -14%        |
| Category 6 - CO <sub>2</sub> e - Business travel               | MT CO <sub>2</sub> e      | 3,343        | 4,638         | 1,396        | 1,026         | 1,700         | 66%         |
| Category 7 - CO <sub>2</sub> e - Employee commuting            | MT CO <sub>2</sub> e      | -            | -             | 1,198        | 1,363         | 969           | -29%        |
| <b>Total Scope 3 GHG emissions</b>                             | <b>MT CO<sub>2</sub>e</b> | <b>3,343</b> | <b>10,555</b> | <b>8,206</b> | <b>12,938</b> | <b>11,371</b> | <b>-12%</b> |

**Note:** Years 2019-2021 are restated due to improved sourcing of information from suppliers and service providers.

### 305-4: GHG emissions intensity

| Intensity by type                   | Units                                    | 2018         | 2019         | 2020         | 2021         | 2022         | YOY        |
|-------------------------------------|--|--------------|--------------|--------------|--------------|--------------|------------|
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /employee           | 1.40         | 0.48         | 0.40         | 0.64         | 0.60         | -6%        |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /employee           | 7.87         | 6.84         | 6.04         | 6.18         | 5.80         | -6%        |
| <b>Scope 1+2 by employee</b>        | <b>MT CO<sub>2</sub>e /employee</b>      | <b>9.27</b>  | <b>7.32</b>  | <b>6.44</b>  | <b>6.81</b>  | <b>6.40</b>  | <b>-6%</b> |
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.07         | 0.02         | 0.01         | 0.02         | 0.02         | 9%         |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.40         | 0.24         | 0.20         | 0.20         | 0.21         | 9%         |
| <b>Scope 1+2 by square meters</b>   | <b>MT CO<sub>2</sub>e /m<sup>2</sup></b> | <b>0.472</b> | <b>0.254</b> | <b>0.210</b> | <b>0.216</b> | <b>0.237</b> | <b>9%</b>  |
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /\$M                | 6.78         | 2.45         | 1.50         | 2.59         | 2.48         | -4%        |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /\$M                | 37.98        | 34.58        | 22.90        | 25.13        | 24.08        | -4%        |
| <b>Scope 1+2 by revenue</b>         | <b>MT CO<sub>2</sub>e /\$M</b>           | <b>44.76</b> | <b>37.03</b> | <b>24.41</b> | <b>27.72</b> | <b>26.56</b> | <b>-4%</b> |
| <b>Scope 1+2+3 all types</b>        |  |              |              |              |              |              |            |
|                                     | MT CO <sub>2</sub> e /employee           | 10.46        | 9.44         | 8.13         | 10.58        | 9.74         | -8%        |
| Scope 1+2+3 GHG emissions intensity | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.532        | 0.327        | 0.265        | 0.336        | 0.360        | 7%         |
|                                     | MT CO <sub>2</sub> e /\$M                | 50.52        | 47.76        | 30.84        | 43.03        | 40.43        | -6%        |

### 303-1: Interactions with water as a shared resource

Ribbon is not a water intensive business. We use small volumes of water for hygiene, cooling and irrigation purposes. We aim to minimize our consumption wherever possible with water-saving devices across our sites.

### 303-2: Management of water discharge-related impacts

Our water discharge is non-toxic and is treated through municipal water grids.

### 303-3: Water withdrawal

| Water withdrawal  | Units                          | 2018  | 2019  | 2020  | 2021  | 2022  | YOY         |
|---|--------------------------------|-------|-------|-------|-------|-------|-------------|
| <b>Total water withdrawal in megaliters- municipal water only</b> | Megaliters                     | 27.45 | 8.63  | 10.99 | 41.33 | 70.64 | <b>71%</b>  |
| <b>Water intensity</b>  | m <sup>3</sup> /employee       | 9.84  | 9.20  | 6.87  | 6.11  | 5.51  | <b>-10%</b> |
| <b>Water intensity</b>  | m <sup>3</sup> /m <sup>2</sup> | 0.50  | 0.32  | 0.22  | 0.19  | 0.20  | <b>5%</b>   |
| <b>Water intensity</b>  | m <sup>3</sup> /\$M            | 47.49 | 46.52 | 26.06 | 24.85 | 22.87 | <b>-8%</b>  |

**Note:** Several of our sites are leased and water is not effectively metered by all the landlords of our leased facilities. With increased demand from Ribbon and other users, landlords are investing in improved water metering and usage reporting. We expect this will increase the accuracy of our water usage reporting in the future.

### 306-1: Waste generation and significant waste-related impacts

### 306-2: Management of significant waste-related impacts

Our overall waste generation is modest, being mainly office related waste such as paper and organic waste. We generate some electronic and/or chemical waste from our R&D and laboratory facilities. We aim to minimize waste where possible, and segregate into waste streams to enable reuse, recycling or safe disposal. As many of our facilities are leased and managed, we aim to work with facility owners to ensure appropriate waste management and accounting processes for the small levels of waste we generate.

**306-3: Waste generated**
**306-4: Waste diverted from disposal**
**306-5: Waste directed to disposal**

| Waste by Type                                       | Units              | 2018        | 2019       | 2020       | 2021       | 2022       | YOY         |
|---|--------------------|-------------|------------|------------|------------|------------|-------------|
| Board, paper  | Metric Tons        | 25          | 0          | 0          | 33         | 22         | -           |
| Organic   | Metric Tons        | 0           | 1          | 3          | 4          | 4          | -           |
| Electronic Waste (WEEE)                             | Metric Tons        | 0           | 6          | 3          | 160        | 46         | -           |
| Dry Mixed Recycling (paper/cans/plastic containers) | Metric Tons        | 152         | 144        | 118        | 292        | 155        | -           |
| Metals  | Metric Tons        | 0           | 0          | 0          | 21         | 1          | -           |
| <b>Total waste – all types</b>                      | <b>Metric Tons</b> | <b>177</b>  | <b>151</b> | <b>124</b> | <b>510</b> | <b>229</b> | <b>-55%</b> |
| <b>Non-hazardous diverted waste from disposal</b>   |                    |             |            |            |            |            |             |
| Recycling (including energy recovery)               | Metric Tons        | 152         | 10         | 12         | 40         | 29         | -           |
| Other recovery operations                           | Metric Tons        | 0           | 0          | 40         | 0          | 0          | -           |
| <b>Non-hazardous waste directed to disposal</b>     |                    |             |            |            |            |            |             |
| Incineration (with energy recovery)                 | Metric Tons        | 0           | 13         | 8          | 4          | 8          | -           |
| Landfill  | Metric Tons        | 0           | 127        | 101        | 95         | 91         | -           |
| <b>Total non-hazardous waste diverted</b>           | <b>Metric Tons</b> | <b>152</b>  | <b>11</b>  | <b>15</b>  | <b>41</b>  | <b>30</b>  | <b>-26%</b> |
| <b>Total non-hazardous waste disposed</b>           | <b>Metric Tons</b> | <b>0</b>    | <b>13</b>  | <b>8</b>   | <b>99</b>  | <b>99</b>  | <b>0%</b>   |
| <b>Total non-hazardous waste</b>                    | <b>Metric Tons</b> | <b>152</b>  | <b>24</b>  | <b>23</b>  | <b>140</b> | <b>129</b> | <b>-8%</b>  |
| <b>Hazardous waste diverted from disposal</b>       |                    |             |            |            |            |            |             |
| Recycling (including energy recovery)               | Metric Tons        | 0           | 0          | 0          | 370        | 99         | -           |
| Other recovery operations/ WEEE recycling           | Metric Tons        | 4           | 0          | 0          | 160        | 46         | -           |
| <b>Hazardous waste directed to disposal</b>         |                    |             |            |            |            |            |             |
| Landfill  | Metric Tons        | 0           | 0          | 0          | 0          | 1          | -           |
| <b>Total hazardous waste diverted</b>               | <b>Metric Tons</b> | <b>4</b>    | <b>0</b>   | <b>0</b>   | <b>370</b> | <b>99</b>  | <b>-73%</b> |
| <b>Total hazardous waste disposed</b>               | <b>Metric Tons</b> | <b>0</b>    | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>1</b>   | <b>125%</b> |
| <b>Total hazardous waste</b>                        | <b>Metric Tons</b> | <b>4</b>    | <b>0</b>   | <b>0</b>   | <b>371</b> | <b>100</b> | <b>-73%</b> |
| <b>Total non-hazardous waste</b>                    | <b>Metric Tons</b> | <b>152</b>  | <b>151</b> | <b>124</b> | <b>140</b> | <b>129</b> | <b>-8%</b>  |
| <b>Total hazardous waste</b>                        | <b>Metric Tons</b> | <b>4</b>    | <b>0</b>   | <b>0</b>   | <b>371</b> | <b>100</b> | <b>-73%</b> |
| <b>Total waste</b>                                  | <b>Metric Tons</b> | <b>156</b>  | <b>24</b>  | <b>23</b>  | <b>510</b> | <b>229</b> | <b>-55%</b> |
| <b>Total waste diverted</b>                         | <b>Metric Tons</b> | <b>156</b>  | <b>11</b>  | <b>15</b>  | <b>411</b> | <b>130</b> | <b>-69%</b> |
| <b>Total waste disposed</b>                         | <b>Metric Tons</b> | <b>0</b>    | <b>13</b>  | <b>8</b>   | <b>99</b>  | <b>100</b> | <b>1%</b>   |
| <b>Total waste diverted</b>                         | <b>%</b>           | <b>100%</b> | <b>25%</b> | <b>68%</b> | <b>81%</b> | <b>57%</b> | <b>-30%</b> |
| <b>Total waste disposed</b>                         | <b>%</b>           | <b>0%</b>   | <b>75%</b> | <b>32%</b> | <b>19%</b> | <b>43%</b> | <b>-39%</b> |
| Waste intensity by employees                        | MT /employee       | 0.056       | 0.009      | 0.007      | 0.148      | 0.067      | -55%        |
| Waste intensity by area                             | MT /m <sup>2</sup> | 0.0028      | 0.0003     | 0.0002     | 0.0047     | 0.0025     | -47%        |
| Waste intensity by revenue                          | MT /\$M            | 0.2699      | 0.0434     | 0.0271     | 0.6041     | 0.2794     | -54%        |

## 401-1: New employee hires and turnover

|                                 |                       | Men < 30     | Men 30-50    | Men > 50     | Women < 30   | Women 30-50  | Women > 50   | All Men       | All Women    | Total         |
|---------------------------------|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|---------------|
| <b>2022:<br/>New hires</b>      | North America         | 36           | 20           | 25           | 12           | 8            | 3            | 81            | 23           | 104           |
|                                 | EMEA                  | 37           | 33           | 9            | 17           | 12           | 3            | 79            | 32           | 111           |
|                                 | ASIA                  | 97           | 78           | 3            | 46           | 13           | 0            | 178           | 59           | 237           |
|                                 | LATAM                 | 1            | 4            | 0            | 0            | 5            | 1            | 5             | 6            | 11            |
|                                 | <b>Total</b>          | <b>171</b>   | <b>135</b>   | <b>37</b>    | <b>75</b>    | <b>38</b>    | <b>7</b>     | <b>343</b>    | <b>120</b>   | <b>463</b>    |
| <b>2022:<br/>New hire rates</b> | North America         | 1.06%        | 0.59%        | 0.74%        | 0.35%        | 0.24%        | 0.09%        | 2.39%         | 0.68%        | 3.06%         |
|                                 | EMEA                  | 1.09%        | 0.97%        | 0.27%        | 0.50%        | 0.35%        | 0.09%        | 2.33%         | 0.94%        | 3.27%         |
|                                 | ASIA                  | 2.86%        | 2.30%        | 0.09%        | 1.36%        | 0.38%        | 0.00%        | 5.24%         | 1.74%        | 6.98%         |
|                                 | LATAM                 | 0.03%        | 0.12%        | 0.00%        | 0.00%        | 0.15%        | 0.03%        | 0.15%         | 0.18%        | 0.32%         |
|                                 | <b>Total</b>          | <b>5.04%</b> | <b>3.98%</b> | <b>1.09%</b> | <b>2.21%</b> | <b>1.12%</b> | <b>0.21%</b> | <b>10.11%</b> | <b>3.54%</b> | <b>13.64%</b> |
| <b>2022:<br/>Leavers</b>        | North America         | 28           | 35           | 69           | 56           | 41           | 2            | 132           | 99           | 231           |
|                                 | EMEA                  | 17           | 49           | 19           | 4            | 18           | 11           | 85            | 33           | 118           |
|                                 | ASIA                  | 135          | 218          | 17           | 56           | 41           | 2            | 370           | 99           | 469           |
|                                 | LATAM                 | 2            | 7            | 1            | 0            | 3            | 0            | 10            | 3            | 13            |
|                                 | <b>Total</b>          | <b>182</b>   | <b>309</b>   | <b>106</b>   | <b>116</b>   | <b>103</b>   | <b>15</b>    | <b>597</b>    | <b>234</b>   | <b>831</b>    |
| <b>2022:<br/>Turnover rates</b> | North America         | 0.82%        | 1.03%        | 2.03%        | 1.65%        | 1.21%        | 0.06%        | 3.89%         | 2.92%        | 6.81%         |
|                                 | EMEA                  | 0.50%        | 1.44%        | 0.56%        | 0.12%        | 0.53%        | 0.32%        | 2.50%         | 0.97%        | 3.48%         |
|                                 | ASIA                  | 3.98%        | 6.42%        | 0.50%        | 1.65%        | 1.21%        | 0.06%        | 10.90%        | 2.92%        | 13.82%        |
|                                 | LATAM                 | 0.06%        | 0.21%        | 0.03%        | 0.00%        | 0.09%        | 0.00%        | 0.29%         | 0.09%        | 0.38%         |
|                                 | <b>Total turnover</b> | <b>5.36%</b> | <b>9.10%</b> | <b>3.12%</b> | <b>3.42%</b> | <b>3.03%</b> | <b>0.44%</b> | <b>17.59%</b> | <b>6.89%</b> | <b>24.48%</b> |

**Note:** Turnover rates include both voluntary and involuntary turnover.

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### 403-1: Occupational health and safety (OHS) management system

We maintain a comprehensive set of OHS standards that are applied throughout Ribbon's operations. Ribbon operations are aligned with ISO 45001:2018 Safety Management System that applies across all our operations and covers all employees. Sites are audited regularly in line with the ISO 45001 standard at least every three years at each site. See [Our Approach to Health, Safety and Wellbeing](#).

### 403-2: Hazard identification, risk assessment, and incident investigation

Work related hazards are identified through workplace inspections and safety observations as defined in our OHS Management System.

### 403-3: Occupational health services

Ribbon does not provide occupational health services onsite.

### 403-4: Worker participation, consultation, and communication on occupational health and safety

Safety Committees operate at all Ribbon sites and include representation from management and employees.

### 403-5: Worker training on occupational health and safety

We provide OHS training online or in classroom format, where relevant, for all new employees and annual safety refreshers for all employees. For employees in specific roles, such as in our laboratories, targeted safety training is delivered, covering specific risks associated with identified roles.

### 403-6: Promotion of worker health

Ribbon promotes health and wellness and aims to raise awareness among employees through our annual Wellness Month and other activities throughout the year. We provide health and wellness related benefits in different countries in line with local market norms, such as medical insurance, dental insurance and more.

### 403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

Our Supplier Code of Conduct requires our suppliers to ensure safe working conditions and a healthy work environment for their workers and uphold a detailed list of OHS standards. We audit our suppliers regarding conformance to our Code.

### 403-8: Workers covered by an occupational health and safety management system

All Ribbon employees are covered by our OHS management system.

### 403-9: Work-related injuries

| Injury rate by year       | 2019  | 2020  | 2021  | 2022  |
|---------------------------|-------|-------|-------|-------|
| Employees and contractors | 0.243 | 0.177 | 0.158 | 0.106 |

| Work-related injuries                   |               | Direct employees |       |       | Other workers |      |       | Total workforce |       |       |
|---|---------------|------------------|-------|-------|---------------|------|-------|-----------------|-------|-------|
|   |               | 2020             | 2021  | 2022  | 2020          | 2021 | 2022  | 2020            | 2021  | 2022  |
| Hours worked                            | Million hours | 6.06             | 6.30  | 5.11  | 0.74          | 1.29 | 0.56  | 6.80            | 7.58  | 5.67  |
| Fatalities                              | Number        | 0                | 0     | 0     | 0             | 0    | 0     | 0               | 0     | 0     |
| Work-related injuries                   | Number        | 4                | 6     | 2     | 2             | 0    | 1     | 6               | 6     | 3     |
| Recordable work-related injuries        | Number        | 0                | 0     | 1     | 0             | 0    | 1     | 0               | 0     | 2     |
| High -consequence work-related injuries | Number        | 0                | 0     | 0     | 0             | 0    | 0     | 0               | 0     | 0     |
| Fatalities                              |               | 0                | 0     | 0     | 0             | 0    | 0     | 0               | 0     | 0     |
| Work-related injuries                   | Rate          | 0.132            | 0.191 | 0.078 | 0.542         | 0    | 0.358 | 0.177           | 0.158 | 0.106 |
| Recordable work-related injuries        | Rate          | 0                | 0     | 0.039 | 0             | 0    | 0.358 | 0               | 0     | 0.071 |
| High -consequence work-related injuries | Rate          | 0                | 0     | 0     | 0             | 0    | 0     | 0               | 0     | 0     |

**Notes:**

- Injury rates are calculated per 200,000 hours for actual hours worked, including remote working. includes employees working from home
- Work-related injuries include all injuries including those requiring first aid but not necessarily resulting in lost workdays.

### 403-10: Work related ill-health

Ribbon has not identified any significant cases of work-related ill health in 2022.



#### 404-1: Average hours of training per employee

| Training hours                                      | 2019         | 2020         | 2021         | 2022         |
|---|--------------|--------------|--------------|--------------|
| Managers  | 11,093       | 8,080        | 8,781        | 8,221        |
| Non-managers  | 55,502       | 37,298       | 41,264       | 33,973       |
| All employees                                       | 66,595       | 45,378       | 50,045       | 42,194       |
| <b>Average training hours per employee per year</b> | <b>10.78</b> | <b>12.00</b> | <b>13.53</b> | <b>12.43</b> |

**Note:** Split by gender is not available. We will work to change our system to record training by gender in the coming two years.

#### 404-3: Employees receiving performance reviews

| Details of performance reviews | 2020       |            | 2021       |            | 2022       |            |
|--------------------------------|------------|------------|------------|------------|------------|------------|
|                                | Men        | Women      | Men        | Women      | Men        | Women      |
| Managers                       | 100%       | 100%       | 100%       | 99%        | 100%       | 100%       |
| Non-managers                   | 99%        | 98%        | 97%        | 97%        | 97%        | 97%        |
| <b>Total by gender</b>         | <b>99%</b> | <b>99%</b> | <b>97%</b> | <b>97%</b> | <b>98%</b> | <b>98%</b> |
| <b>Total</b>                   | <b>99%</b> |            | <b>97%</b> |            | <b>98%</b> |            |

#### 405-1: Diversity of governance bodies and employees

| Employees by age group      | 2020       |              |              | 2021       |              |              | 2022       |              |              |
|-----------------------------|------------|--------------|--------------|------------|--------------|--------------|------------|--------------|--------------|
|                             | < 30       | 30 - 50      | > 50         | < 30       | 30 - 50      | > 50         | < 30       | 30 - 50      | > 50         |
| Number of managers          | 4          | 298          | 367          | 3          | 372          | 301          | 3          | 335          | 308          |
| Number of non-managers      | 737        | 880          | 1,495        | 771        | 1,403        | 848          | 669        | 1,237        | 842          |
| <b>Total employees</b>      | <b>741</b> | <b>1,178</b> | <b>1,862</b> | <b>774</b> | <b>1,775</b> | <b>1,149</b> | <b>672</b> | <b>1,572</b> | <b>1,150</b> |
| % of managers               | 1%         | 45%          | 55%          | 0%         | 55%          | 45%          | 0%         | 52%          | 48%          |
| % of non-managers           | 24%        | 28%          | 48%          | 26%        | 46%          | 28%          | 24%        | 45%          | 31%          |
| <b>% of total employees</b> | <b>20%</b> | <b>31%</b>   | <b>49%</b>   | <b>21%</b> | <b>48%</b>   | <b>31%</b>   | <b>20%</b> | <b>46%</b>   | <b>34%</b>   |

**Board of Directors:** Two Board members are women (22%) and two (22%) are underrepresented minorities. Total Board diversity: 44%

# SASB DISCLOSURE

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| Topic   | Code         | Accounting Metric  | Response   |
|---|--------------|--|--|
| Product Security  | TC-HW-230a.1 | Description of approach to identifying and addressing data security risks in products  | See response on page 59.   |
| Employee Diversity & Inclusion                                    | TC-HW-330a.1 | Percentage of gender and racial/ethnic group representation for management   | <b>17%</b> women at executive and management level.<br><b>9%</b> racial/ethnic representation at management level*   |
|   |              | Percentage of gender and racial / ethnic group representation for technical staff  | <b>7.7%</b> racial / ethnic group representation for technical staff.<br><b>20%</b> female representation for technical staff.   |
|   |              | Percentage of gender and racial/ethnic group representation for all other employees  | <b>24%</b> of all non-management employees at Ribbon are women.<br><b>8.7%</b> of racial/ethnic group representation among non-management non-technical employees at Ribbon.   |
| Product Lifecycle Management                                      | TC-HW-410a.1 | Percentage of products by revenue that contain IEC 62474 declarable substances   | Zero   |
|   | TC-HW-410a.2 | Percentage of eligible products, by revenue, meeting the requirements for EPEAT registration or equivalent                     | Our products are not registered with EPEAT   |
|   | TC-HW-410a.3 | Percentage of eligible products, by revenue, meeting ENERGY STAR® criteria   | We do not currently apply ENERGY STAR® criteria for our products.  |
|   | TC-HW-410a.4 | Weight of end-of-life products and e-waste recovered (metric tons)   | Not available  |
| Percentage of end-of-life products and e-waste recovered recycled |              | Not available  |  |
| Supply Chain Management   | TC-HW-430a.1 | Percentage of Tier 1 supplier facilities audited in the RBA Validated Audit Process (VAP) or equivalent - all facilities       | Ribbon supplier facilities are audited using Ribbon's internal standards, guided by ISO. 100% of Tier 1 facilities were audited in 2022.   |
|   |              | Percentage of Tier 1 supplier facilities audited in the RBA Validated Audit Process (VAP) or equivalent - high-risk facilities | Ribbon supplier facilities are audited using Ribbon's internal standards, guided by ISO. 100% of Tier 1 facilities were audited in 2022.   |
|   | TC-HW-430a.2 | Tier 1 suppliers' non-conformance rate with the RBA Validated Audit Process (VAP) or equivalent and corrective actions         | Zero major non-conformances were found in audited suppliers in 2022 against Ribbon's internal standards.   |
| Materials Sourcing  | TC-HW-440a.1 | Description of the management of risks associated with the use of critical materials   | Ribbon does not have a critical material risk, given our minimal use of such materials. In any event, we do not stockpile materials and maintain mitigations plans for all materials that can be substituted if necessary. |

**Note:** Racial / ethnicity data is based on voluntary self-identification and many employees choose not to self-identity. We believe our data includes approximately 25% of the workforce. Rates have been calculated against the total workforce and are therefore likely to be understated.

| Code        | Activity Metric                                | Response  |
|-------------|--|---|
| TC-HW-000.A | Number of units produced by product category   | More than 60% of revenues come from services. The remaining sales are hardware in different forms, but specific numbers of units shipped is not currently tracked globally. |
| TC-HW-000.B | Area of manufacturing facilities               | All Ribbon manufacturing is outsourced. Ribbon has no owned or operated manufacturing facilities.   |
| TC-HW-000.C | Percentage of production from owned facilities | 0%  |

## Product Security: TC-HW-230a.1

### Description of approach to identifying and addressing data security risks in products

- Product security considerations, risk assessments, hazard identification and protection measures are built into Ribbon processes at every state of our product lifecycle through concept, planning design validation, maintenance and end-of-life.
- Ribbon R&D supports an active program to ensure that our products are as secure as possible, based on working with leading frameworks and standards over several years. We incorporate learnings from:
  - The Open Web Application Security Project ® (OWASP)
  - The CERT Coordination Center (CERT/CC)
  - Most Dangerous Software Errors (CWE/SANS)
  - Center for Internet Security (CIS)
- Our product security program also manages a set of processes and policies that support maintaining highest possible levels of security such as: Vulnerability Resolution Policy, Incident Response Process, and other processes.
- Ribbon's product R&D organization utilizes a variety of tools to help manage and maintain product security. Tests are also run with an AddressSanitizer (ASan) instrumented load
- Ribbon engineers receive mandatory annual security training that combines commercial security training along with proprietary training content.

# TCFD OVERVIEW

This is our overview of climate-related financial disclosures in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). TCFD is a voluntary, consistent framework for disclosure aiming to provide information to investors, lenders, insurers and other stakeholders. For further information, see also our [CDP Climate Change submissions on the CDP website.](#)

## 1 Governance

### 1.1 Board oversight

Ribbon's Board of Directors reviews and guides Ribbon's sustainability strategy and climate change goals and aspirations. Our overall sustainability strategy is led by Ribbon's Executive Vice President and Chief Legal Officer., who updates the President and Chief Executive Officer and Board of Directors regularly through the year.

### 1.2 Management's role

Our Executive Team takes responsibility for Ribbon's climate change strategy, under the leadership of Executive Vice President and Chief Legal Officer. In 2020, our Executive Team authorized the investment in a multi-year sustainability strategy, following a robust materiality assessment and selection of the most important sustainability topics that are relevant for Ribbon and Ribbon's stakeholders. The sustainability strategy comprises four pillars, one of which is Low Carbon Economy, addressing our aspiration to contribute to decarbonizing the global economy through innovative technologies and resource efficiency. As an initial target, we commit to reducing our direct greenhouse gas emissions by 30% by 2030 (Scope 1+ 2 MT CO<sub>2</sub>e, from a base year of 2018), with an ultimate aspiration to achieve net zero emissions.

Within Ribbon, our Real Estate and Supply Chain Management divisions monitor our energy consumption and waste, tracking our performance at each of our sites around the world. These teams are responsible for recommending and implementing operational efficiencies and recommending capital investment where relevant to support improving our energy, emissions and waste performance.

## 2. Strategy

### 2.a Climate-related risks and opportunities

Ribbon is primarily a contributor to climate change mitigation through the products and services we provide that accelerate and amplify digital transformation, a proven, reliable enabler of a low carbon economy. Our business does not directly manufacture products, our infrastructure and direct greenhouse gas emissions are modest. We outsource our component manufacturing to large, reliable, robust third-party

manufacturers who have a presence in multiple international locations. This enables us to implement a flexible and efficient manufacturing and logistics landscape for each product line and target markets. This structure also facilitates business continuity to mitigate risks related to trade tariffs, natural disasters, critical material supply and other climate change impacts.

**Risks:** We review risks to our business annually in our Enterprise Risk Management program and seek to mitigate identified risks through risk management action tool and also through our Business Continuity Management program. A preliminary assessment of climate change risks to our business indicates that there are no expected material impacts in the short term. In the medium to long term, we face potential disruption to services at our facilities, or disruption to Internet infrastructure that could affect our customers. These risks are mitigated through our considerable flexibility of manufacturing, strong supplier relationships and of operations from our R&D and testing sites. Our robust business continuity planning enables us to prepare effectively to safeguard against these risks.

Additionally, in the medium to long term, we may face risks from increasing carbon regulation and pricing. We do not expect that this will materially affect our business, given our low carbon footprint today, which is also a result of our ongoing successes at optimizing our operational efficiencies and reducing our carbon footprint for over a decade. This gives us confidence that, as we plan to further reduce our carbon footprint, we expect this risk to reduce further in significance.

**Opportunities:** With Internet and Communications Technology (ICT) being a major contributor to sustainable development and a low carbon economy, we see significant business opportunity in the continuation of provision of our products and services that support digitization of communications and national digital transformations. Currently, we are attracting many customers on the basis of our positive sustainability performance and our ability to help them meet their own climate change objectives and help them protect themselves against energy price volatility and carbon tariffs. In 2022, more than 70% of our annual global revenue was influenced by sustainability considerations and requirements from our customers and more than 90% of 2022 revenue from Ribbon's top 20 global customers (by spend) was linked to sustainability requirements

### 2.b Impact on strategy

Ribbon intends to conduct a science-based analysis of potential climate change impacts on our business strategy, and we expect to disclose more extensively on this in future reports. Given the modest risk exposure of our business, we do not anticipate that a major strategic transformation will be required, but rather adjustments to new and emerging realities.

## 2.b Climate resilience

ICT is a major contributor to sustainable development and a low carbon economy and we see significant business opportunity in the continuation of provision of or products and services that support digitization of communications and national digital transformations. We deliver 5G and are developing the next generation of network infrastructure, we provide essential services for national governments, utilities, education and healthcare sectors. We believe we are supporting climate resilience in many markets around the world and expect accelerated and expanded demand for our products over time, as global digital transformation continues to advance, especially in emerging economies. In 2022, we invested 25% of our global revenue in innovation to continue to support the acceleration of a low-carbon digital economy.

## 3. Risk Management

### 3a. Process to identify climate change risk

Annually we use many expert sources of data, both internal and in the public domain to assign impact and likelihood scores to newly identified risks that may affect our business. Our Enterprise Risk Management program seeks to track mitigation of our identified risks through risk management actions and also through enhancements to our Business Continuity Management program.

### 3b. Process to manage climate change risks

Our Enterprise Risk Management program also seeks to review the previous scoring of identified risks and mitigate identified risks through risk management actions and also through our Business Continuity Management program. We maintain a companywide program that is carefully reviewed at each stage and involve reporting to our Executive management.

### 3c. Climate change integration

We have risk management, disaster preparedness, and business continuity plans that are fully integrated into our business planning and ongoing review. We believe these are robust enough to safeguard against climate change risks to Ribbon's business.

## 4. Metrics

### 4a. Metrics

Ribbon measures Scope 1+2 GHG emissions, and partial Scope 3 emissions. In 2022, our disclosure covers 99% of our Scope 3 contract manufacturing and other Scope 3 categories.

### 4b. Emissions performance

| Scope 1 - Gases and fuels          | Units                     | 2018         | 2019         | 2020         | 2021         | 2022         | YOY        |
|------------------------------------|---------------------------|--------------|--------------|--------------|--------------|--------------|------------|
| Natural gas                        | MT CO <sub>2</sub> e      | 959          | 1,283        | 1,165        | 1,353        | 1,363        | 1%         |
| Diesel                             | MT CO <sub>2</sub> e      | 198          | 26           | 24           | 32           | 24           | -25%       |
| Gasoline                           | MT CO <sub>2</sub> e      | 2,762        | 70           | 77           | 804          | 649          | -19%       |
| LPG/Propane                        | MT CO <sub>2</sub> e      | 0            | 1.07         | 0.43         | 0.25         | 0.21         | -          |
| <b>Total Scope 1 GHG emissions</b> | <b>MT CO<sub>2</sub>e</b> | <b>3,919</b> | <b>1,381</b> | <b>1,267</b> | <b>2,190</b> | <b>2,036</b> | <b>-7%</b> |

| Scope 2 - Electricity                | Unit                      | 2018          | 2019          | 2020          | 2021          | 2022          | YOY        |
|--------------------------------------|---------------------------|---------------|---------------|---------------|---------------|---------------|------------|
| Purchased electricity market based   | MT CO <sub>2</sub> e      | 21,641        | 19,135        | 19,053        | 20,935        | 15,988        | -24%       |
| Renewable electricity purchased      | MT CO <sub>2</sub> e      | 309           | 336           | 274           | 299           | 3,757         | 1156%      |
| <b>Total Scope 2 GHG emissions</b>   | <b>MT CO<sub>2</sub>e</b> | <b>21,950</b> | <b>19,471</b> | <b>19,327</b> | <b>21,235</b> | <b>19,745</b> | <b>-7%</b> |
| <b>Total Scope 1+2 GHG emissions</b> | <b>MT CO<sub>2</sub>e</b> | <b>25,869</b> | <b>20,852</b> | <b>20,593</b> | <b>23,424</b> | <b>21,781</b> | <b>-7%</b> |
| Scope 1+2 Market based               | MT CO <sub>2</sub> e      | 25,869        | 20,852        | 20,593        | 23,424        | 21,781        | -7%        |
| Scope 1+2 Location based             | MT CO <sub>2</sub> e      | 22,109        | 23,677        | 24,380        | 23,774        | 22,576        | -5%        |

| Scope 3 Emissions   | Units                     | 2018         | 2019          | 2020         | 2021          | 2022          | YOY         |
|---|---------------------------|--------------|---------------|--------------|---------------|---------------|-------------|
| Category 1: Purchased goods and services                      | MT CO <sub>2</sub> e      | -            | -             | -            | 1,832         | 2,167         | 18%         |
| Category 3A: Upstream emissions of purchased fuels            | MT CO <sub>2</sub> e      | -            | 192           | 178          | 464           | 420           | -9%         |
| Category 3B: Upstream emissions of purchased electricity      | MT CO <sub>2</sub> e      | -            | 3,947         | 3,713        | 6,386         | 4,916         | -23%        |
| Category 3C: Transmission and distribution (T&D) losses       | MT CO <sub>2</sub> e      | -            | 1,702         | 1,677        | 1,816         | 1,155         | -36%        |
| Category 5: CO <sub>2</sub> e - Waste generated in operations | MT CO <sub>2</sub> e      | -            | 75            | 45           | 51            | 44            | -14%        |
| Category 6: CO <sub>2</sub> e - Business travel               | MT CO <sub>2</sub> e      | 3,343        | 4,638         | 1,396        | 1,026         | 1,700         | 66%         |
| Category 7: CO <sub>2</sub> e - Employee commuting            | MT CO <sub>2</sub> e      | -            | -             | 1,198        | 1,363         | 969           | -29%        |
| <b>Total Scope 3 GHG emissions</b>                            | <b>MT CO<sub>2</sub>e</b> | <b>3,343</b> | <b>10,555</b> | <b>8,206</b> | <b>12,938</b> | <b>11,371</b> | <b>-12%</b> |

**Note:** Years 2019-2021 are restated due to improved sourcing of information from suppliers and service providers.

## GHG emissions intensity

| Intensity by type                   | Units                                    | 2018         | 2019         | 2020         | 2021         | 2022         | YOY        |
|-------------------------------------|--|--------------|--------------|--------------|--------------|--------------|------------|
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /employee           | 1.40         | 0.48         | 0.40         | 0.64         | 0.60         | -6%        |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /employee           | 7.87         | 6.84         | 6.04         | 6.18         | 5.80         | -6%        |
| <b>Scope 1+2 by employee</b>        | <b>MT CO<sub>2</sub>e /employee</b>      | <b>9.27</b>  | <b>7.32</b>  | <b>6.44</b>  | <b>6.81</b>  | <b>6.40</b>  | <b>-6%</b> |
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.07         | 0.02         | 0.01         | 0.02         | 0.02         | 9%         |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.40         | 0.24         | 0.20         | 0.20         | 0.21         | 9%         |
| <b>Scope 1+2 by square meters</b>   | <b>MT CO<sub>2</sub>e /m<sup>2</sup></b> | <b>0.472</b> | <b>0.254</b> | <b>0.210</b> | <b>0.216</b> | <b>0.237</b> | <b>9%</b>  |
| Scope 1 GHG emissions intensity     | MT CO <sub>2</sub> e /\$M                | 6.78         | 2.45         | 1.50         | 2.59         | 2.48         | -4%        |
| Scope 2 GHG emissions intensity     | MT CO <sub>2</sub> e /\$M                | 37.98        | 34.58        | 22.90        | 25.13        | 24.08        | -4%        |
| <b>Scope 1+2 by revenue</b>         | <b>MT CO<sub>2</sub>e /\$M</b>           | <b>44.76</b> | <b>37.03</b> | <b>24.41</b> | <b>27.72</b> | <b>26.56</b> | <b>-4%</b> |
| <b>Scope 1+2+3 all types</b>        |  |              |              |              |              |              |            |
| Scope 1+2+3 GHG emissions intensity | MT CO <sub>2</sub> e /employee           | 10.46        | 9.44         | 8.13         | 10.58        | 9.74         | -8%        |
|                                     | MT CO <sub>2</sub> e /m <sup>2</sup>     | 0.532        | 0.327        | 0.265        | 0.336        | 0.360        | 7%         |
|                                     | MT CO <sub>2</sub> e /\$M                | 50.52        | 47.76        | 30.84        | 43.03        | 40.43        | -6%        |

For the basis of our reporting, please see “Note to energy and emissions data compilation” in our 2022 Sustainability Report.

### 4c. Targets

Reduce direct carbon emissions by 30% by 2030 (Scope 1 and 2 CO<sub>2</sub>e, from a base year of 2018). Longer term, we aspire to achieve net zero greenhouse gas emissions.



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