



# RIBBON

SUSTAINABILITY REPORT 2023



# MESSAGE FROM OUR CEO



The importance of always-on, connected communications is critical. Communications networks help drive economic growth and development by making huge volumes of data available in real time, enabling global collaboration, enhancing productivity and offering opportunities for businesses of all sizes, even those in remote and underserved parts of the world. At the same time, the wealth of communications platforms available for individuals enable a new level of connectedness and interest, educating, entertaining and enriching lives.

Our business at Ribbon helps make all this happen; our mission is to be a leader in global technology, providing open, cloud-centric solutions spanning multiple network layers that enable the secure exchange of communications and information, with unparalleled scale, performance and flexibility.

This year, we continued to grow our revenue and expand our cutting-edge solutions for our customers in more than 140 countries around the world. Investing 23% of our total revenue in R&D in 2023, we continue to demonstrate our commitment to creating technology innovation for further positive impact globally.

The expansion of online communications technologies brings risks for our enterprise customers and for individuals with the parallel explosion in cyber threats and risks of network breaches. We have made network and communications security a singular feature of our technology development so that our customers, and their customers, can be confident that they are protected when using our platforms. Our prowess in the development of tools to meet this need is being deployed in Europe and elsewhere, both to meet legislation and to provide advanced solutions to minimize the impact of fraudulent use of communications networks.

As we grow, we maintain our focus on environmental, social and governance (ESG) matters and made strong progress in 2023 against our public targets. In fact, we met our climate change target of reducing direct carbon emissions by 30% by 2030 by achieving 33% reduction compared to our base year of 2018. This is a significant achievement, due to ongoing resource efficiencies and optimization of our operations as well as the adoption of renewable energy for part of our requirements. Our challenge will be to maintain and further improve this performance going forward.

We also drove progress in our supply chain, continuing to embed our ethical conduct requirements for our suppliers across our supply base and, for the first time, auditing Tier 1 contract manufacturers representing 52% of our total supply chain spend, with positive results. We have a multiyear plan to continue this important work to monitor, manage and mitigate risk in our supply chain in the coming years as we work to meet our 2025 target.

Our third key target, increasing representation of women at management levels in Ribbon, remains challenging to achieve and will require further focus in the coming years. We are confident that we can improve on our current level of 17% of women in management roles with continued focus and investment.

Additionally, in this Report, we describe many other areas of progress and positive action, which I hope you will find useful as a valued Ribbon stakeholder.

Thank you for your interest in this report.

We welcome your feedback.

**Bruce McClelland**

President and Chief Executive Officer

As we grow, we maintain our focus on ESG and made strong progress in 2023 against our public targets.

**Bruce McClelland**  
President and Chief Executive Officer

# 2023 SUSTAINABILITY HIGHLIGHTS

**91%**

of employees confirmed they felt accepted and valued in our 2023 Employee Experience Survey

**34%**

reduction in our Total Recordable Injury Rate to 0.07 in 2023, the sixth consecutive year of health & safety improvements

**26%**

of new hires were women

**Newsweek's Most Responsible Companies 2024**

ranking 6th among 54 software & telecommunications companies

**13**

training hours per employee (tracked on average across our workforce)

**17%**

reduction in the rate of waste sent to landfills compared to 2022

**1,100+**

employees volunteered more than **5,100** hours in Ribbon's 2023 Global Day of Service

**Ribbon Named to Newsweek's Greatest Workplaces for Women 2024**

**33%**

cumulative reduction in absolute Scope 1+2 GHG emissions in 2023 compared to our 2018 base year, exceeding our 2030 target

**79%**

of in-scope suppliers provided responses to our conflict minerals survey, representing a **7%** increase in the number of suppliers responding

**90%**

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

**EcoVadis Silver Sustainability Rating in 2023**

placing Ribbon in the top 16% of our peer companies in the Information and Communications Technology sector

**17%**

of management roles were held by women



**21%**

of Tier 1 suppliers completed third-party audits against our Supplier Code of Conduct with zero critical findings

**America's Climate Leaders 2023**

# ABOUT RIBBON



# 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

At Ribbon, we believe that aligning personal and company values drives us towards success, which lead to greater empowerment and autonomy at work. This empowerment fosters higher job satisfaction, engagement, and productivity. Ribbon's core values are:

### 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.

### TRUE

Underpinning everything we value, is the Ribbon concept TRUE:

**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.



## 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.

## Our Products

Ribbon's industry-leading portfolio of technology products is designed to ensure 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 (Cloud and Edge and IP Optical Networks), 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.



### IP Optical Networks

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

A solution portfolio providing secure multilayer optimized IP and optical transport for service provider, critical infrastructure and enterprise networks, that delivers innovative services rapidly under an intelligent and automated control system.

## Our Services

### Professional Services

Ribbon offers complete life cycle services from planning & design to deployment & integration, test & verification, migration, staff augmentation, network operations, and education services. Through a unique combination of experience, expertise, breadth, and intellectual property, we can help customers large and small, deploy and migrate to secure, Next Generation IP and Software Based Communication Solutions whether on-premises or in the cloud.

### Customer Support

Ribbon offers a comprehensive global portfolio of maintenance and support services allowing customers to minimize risks and maximize the return on Ribbon solutions. A 24x7 network of Global Response Center specialists, linked directly to Ribbon R&D teams when needed, assure rapid work on recovery and escalation response to critical outage events and prompt less critical issue resolution. Ribbon Support delivery processes and goals are managed as metrics within Ribbon's TL9000 and ISO 27001 compliant Quality Management Systems.

## Ribbon by the Numbers

**\$826 million**

Total Revenue (2023)

**\$191 million**

R&D Spend (23% of total revenue)

**1,000+**

Customers in 140 countries

**1,000+**

Patents

**>3,100**

Employees

# SUSTAINABILITY AT RIBBON



# 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 2023, we engaged with stakeholders in several ways to understand their perspectives and expectations of Ribbon in our rapidly changing world. Examples throughout the year can be found in the different sections of this report. See also [Our Approach to Stakeholder Engagement](#).

We continue to track the queries we receive from our global customer base that relate to sustainability topics ranging from climate change mitigation through to health and safety, human rights, diversity and many other topics. In 2023, we received the highest number of queries since we started tracking more than 12 years ago. These customers represent more than 75% of our revenues, reflecting the high interest in sustainable practices from this stakeholder group.

# MATERIAL TOPICS

As part of a comprehensive materiality assessment, we defined the sustainability material topics for our global Ribbon operations including our Supply Chain, R&D and Services organizations. 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](#).






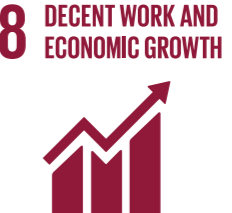
## Ribbon's 15 Material Sustainability Topics

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



# SUSTAINABILITY STRATEGY AND TARGETS

We aspire to be proactive in 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 the need to advance solutions to critical global issues addressed by the UN Sustainable Development Goals (SDGs).

Strategy	Trusted Technology for People and Planet			
Pillars	Business Integrity	Secure and Inclusive Technology	Low Carbon Economy	Future-Fit Workforce
<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>	 <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	 <p>13 CLIMATE ACTION</p>	 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>

## Our Three by Thirty Sustainability Targets

## Progress in 2023

## Comment

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

**33% reduction** in Scope 1+2 CO<sub>2</sub>e emissions compared to 2018.

**Target met** – we aim to continue to manage our emissions to maintain and improve this result by 2030.

**Diversity & Inclusion:** Increase women in management to 30% of all management roles to be held by women by 2025

**17%** of management roles were held by women in 2023.

We continue to invest in programs and processes that will accelerate greater representation of women in management roles.

**Supply Chain:** Achieve 30% of our Tier 1 suppliers audited with zero major non-conformances against Ribbon’s Supplier Audit Protocol by 2025

**21%** of our Tier 1 suppliers were audited against our Supplier Code of Conduct in 2023 by independent external auditors.

Additional audits representing 14% of our Tier 1 Suppliers are scheduled for 2024, which will enable us to meet our 30% target.

# SOCIAL IMPACT: TECHNOLOGY



# SOCIAL IMPACT: TECHNOLOGY

Advances in communications and networks technologies have the power to transform life and business across multiple dimensions, enabling connectivity, productivity and efficiency around the globe. At Ribbon, we maintain our position at the leading edge of technology through investment in the research and development of solutions that flexibly meet our customers' needs both now and in the future.

In 2023, 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. Our focus is on delivering next-generation solutions, enhancing access to technology, improving safety and security of communications solutions and enabling environmental benefits through virtualization and flexible interoperability of our solutions with legacy platforms.



Ribbon's fourth Annual Tech Forum in November 2023 brought together hundreds of experts from across the communications industry to discuss the latest in technology and business trends, and to share best practices on how to successfully address common opportunities and challenges impacting today's communications ecosystem. Bruce McClelland, Ribbon's CEO and President, shared perspectives at the start of the day.



# ENHANCING ACCESS

We deployed Ribbon solutions across several countries in 2023, by helping leading providers around the world transition from legacy networks to real-time communications technology and IP Optical networking solutions. Our modern solutions help these providers deliver high speed broadband access, instant connectivity and many other digital tools to millions of users around the world.



## Upgrading Networks for Improved Access

A selection among our many 2023 deployments in different countries includes:

- **Australia:** Powerlink, the electrical transmission grid operator in the Australian state of Queensland selected Ribbon to help modernize its statewide operational network. Powerlink's network extends 1,700 km with 15,000 km of transmission lines and utilizes Ribbon's packet transport routers to build a robust and protected internal communications network.
- **Philippines:** InfiniVAN, the Philippines' leading provider of business internet in the Philippines' modernized its nationwide backbone with the support of Ribbon's packet transport routers and IP Optical networking solutions.
- **Portugal:** 1GLOBAL, a leader in telecommunication services and a pioneer in eSIM technology, deployed Ribbon solutions across its worldwide network, designed and operated from Portugal.



## Improving Access in Rural Networks in the U.S.

Expanding rural connectivity in the U.S. continues to be a priority for Ribbon. While access to broadband services has improved in the past several years, with a gap of 30% between urban and rural areas as of year-end 2016, this reduced to 16% in 2019, with approximately 17% of Americans in rural areas and 21% of Americans in Tribal lands lacking broadband coverage, as compared to only 1% of Americans in urban areas. At Ribbon, we go the extra mile to understand the needs of rural and Tribal regions in the U.S. and provide transformative solutions that will connect people, families, businesses and communities and help improve the quality of life. Some examples of important deployments in the U.S. in 2023 include:

**Illinois:** We delivered our network upgrade and capacity expansion solutions for the Harrisonville Telephone Company, an Illinois-based provider of communications services, including high-speed Internet in many rural areas. Also, Ribbon's optical networking solution for broadband aggregation was selected by communications provider Shawnee Communications, which serves residents and businesses in rural communities in Southern & Central Illinois.

**New York:** A comprehensive range of optical network routing and transport solutions were installed for Empire Access, a telecommunications company serving residential and business customers in Upstate New York and Northern Pennsylvania, including several rural communities.

**North Carolina:** Our IP and optical transport portfolio was deployed by SkyLine, a provider of advanced telecommunications to areas of northwest North Carolina and east Tennessee. SkyLine helps build access to broadband in several rural communities, Ribbon's creative solutions met the needs of the grant approvers to allow the delivery of fiber services to unserved areas.

**Texas:** Our optimized, automated and open IP optical solutions were deployed by TLSN, a consortium of 41 rural broadband service providers in Texas, to support expansion of capacity in its statewide transport network.

**South Dakota:** Valley Telecommunications, a South Dakota provider of telephone, internet and television services, selected Ribbon to upgrade its network and provide a tenfold increase in bandwidth for local residents and businesses. The comprehensive network upgrade includes optical transport and network solutions that enable Valley Telecommunications to better support broadband aggregation, offer differentiated services for small and mid-sized businesses, deliver greater bandwidth and security, and seamlessly support mobile backhaul needs.

Valley Telecommunications is dedicated to providing the best possible experience to our customers. Partnering with Ribbon means we have the most comprehensive IP optical networking technology on the market and can offer highly reliable communications services at a fair price.

**Jeff Symens**, CEO and General Manager, Valley Telecommunications

# DELIVERING ADVANCED NETWORKS AND SOLUTIONS

Next-generation networks are needed to support improved speed, agility, security and economics across multiple platforms in today's complex technology environment. 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. National operators of critical infrastructure are reliant upon comprehensive, reliable and trustworthy solutions to ensure the delivery of critical services to large populations. We aim to solve our customers' most challenging communications requirements, enabling people and devices to connect anytime, anywhere. A selection of our deployments from around the world in 2023 includes the following:

## Delivering Voice and Meeting Connectivity Solutions

In the hybrid world of work, where companies seek advanced, integrated, secure collaboration and meeting solutions, we have been enhancing and expanding our capabilities and tools for service providers.



### Zoom solutions

In 2023, we launched our new Ribbon Connect for Zoom to enable service providers to rapidly deliver telecom services to Zoom Phone deployments across the globe via Zoom Phone's Provider Exchange. Our solution delivers ready-made integration services, connectivity paths and workflows for integration into the Zoom Phone Provider Exchange. Service Providers can accelerate time to market for their Zoom Phone integration while reducing the burden of implementing custom integration. In turn, the Zoom Phone Provider Exchange's web interface makes it easy for customers to quickly search for and select a certified telecom provider in their region, offering them the freedom to select the provider that best meets their needs. Given the significant uptake of Zoom as a communications platform, this new extension of our Ribbon Connect portfolio makes connectivity easier, faster and more economic for users around the world.



### Microsoft Teams solutions

In Canada, we worked with Beanfield, a telecommunication services provider, leveraging our Ribbon Connect platform to facilitate and enhance its deployment of Operator Connect for Microsoft Teams, enabling Beanfield to offer its customers telecom services to enhance collaboration solutions, in particular for hybrid work models. Our Operator Connect platform enables seamless connectivity, making it easier for businesses to transition from legacy telephony services to Microsoft Teams Phone with confidence in the security and reliability of our service solution. Also, in Costa Rica, we partnered with kölbi Negocios, a Costa Rica-based telecommunications solutions company, to deploy Ribbon Connect for Microsoft Teams Direct Routing which streamlines the process of turning Teams into the default office phone system, reducing cost and complexity across a large user base, and simplifies access to Microsoft Teams Phone capabilities.

## Enhancing Network Security

Fraud is not a new phenomenon, but its players in the Information and Communications Technology (ICT) space are constantly evolving. Ribbon invests in understanding the details of network connections with contractors and suppliers and provides controls for utility supply, software communication, cloud data interactions and more. Ribbon's solutions include securing network perimeters with a strong IP network of firewalls and other network components.

In the field of telephony, which has benefited from VoIP technology, allowing multiple options for calling at low rates across borders, risks have escalated as scammers and fraudsters have hijacked this technology. Caller validation can be challenging, notably for smaller networks, especially when aiming to comply with regulatory frameworks.

Ribbon has placed major focus on securing telephony networks to address these threats and help customers of all sizes comply with evolving regulation. Part of the Ribbon Call Trust® portfolio, our STIR/SHAKEN solution is designed to meet regulatory needs for caller identity authentication, signing, verification and certificate management, can be easily and quickly deployed in service provider networks in order to help ensure caller identity and minimize fraudulent calls. Ribbon's "STIR/SHAKEN as a Service" solution leverages Ribbon's Identity Hub, an innovative, cloud-based platform that enables identity assurance services without the need to deploy on-premises equipment. STIR/SHAKEN has been deployed by several customers in North America, protecting users in millions of phone calls every day.

In 2023, we further deployed our STIR/SHAKEN solution to verify the majority of traffic in France within most carriers to meet the new government mandates around call security. These are defined in French law as part of the MAN (Mécanisme d'Authentification des Numéros) Project conducted by French telecommunications regulator ARCEP that came into effect in July 2023.

Working with Ribbon enables us to meet our regulatory obligations within the required timelines. By leveraging cloud technologies, we benefit from a fast and seamless deployment while protecting our customers from calls that range from simply annoying to malicious, delivering a more positive customer experience.

**Robin Farnan**  
Executive Vice President, Operations and Engineering,  
Colt Technology Services

Our STIR/SHAKEN solution was created to help our customers adapt to the regulatory landscape across the USA and Europe. Our leadership and experience in identity assurance will enable our customers to improve the overall telephony experience for their users.

**Christian Erbe**  
Head of Sales, Europe





## Upgrading Network Performance with Analytics

Our analytics platforms help telephone service providers make smarter decisions, faster, and better serve their customers, delivering a positive social impact through high-performance and highly secure communications technology. Our comprehensive Ribbon Analytics solution delivers sophisticated analysis, state-of-the-art troubleshooting, monitoring, and automation to enhance network performance across multiple dimensions. With Ribbon Analytics deployed in their network, service providers gain extensive monitoring capabilities for KPIs and key trends as well as the ability to alert, diagnose, and resolve multiple security threats or user experience issues, resulting in end-to-end network visibility, improved operational productivity, and incident resolution. In 2023, Liberty Latin America leveraged Ribbon’s Analytics solution to more effectively monitor third party devices to help create new dashboards to measure performance and improve security.

## Helping to Connect Africa

In Africa, we supported Bayobab, a next-generation services company operating 15 subsea cables and 112,000 kilometers of open-access fiber, linking 47 international points of presence across Africa and the Middle East to form Africa’s most significant fixed connectivity infrastructure. In 2023, we provided our highly efficient, power-saving solution, evolving Bayobab’s IP network to full virtualization, eliminating the need for a large number of servers at each communications hub. Improving visibility across the end-to-end solution through our Ribbon Connect platform and advanced analytics for fraud protection, we helped enhance Bayobab’s capability to offer advanced, reliable, secure and cost-competitive solutions for its customers across multiple countries.

## Improving Network Efficiency

In Mexico, we supported our customer, Axtel, a leading telecommunications company, with a major overhaul of its communications infrastructure through virtualization that enabled the elimination of 12 physical servers across the network. This change enabled Axtel to deliver significant energy savings to reduce its environmental footprint while enhancing network security both for Axtel and for its customers. We deployed our SBCs across the network for enhanced security and reliability.

“We’re constantly striving to provide our customers with the best experience and Ribbon Analytics offers us a sophisticated toolset to do just that. With capabilities including improved identification, fraud attempt prevention, insights into voice quality, and automated troubleshooting in the event of an issue, we gain the data needed to manage our network for improved performance and efficiency.

**Gustavo Marsico**  
Director of Technology Strategy, Liberty Latin America

<sup>1</sup> Federal Communications Commission, Fourteenth Broadband Report, 2021, <https://docs.fcc.gov/public/attachments/FCC-21-18A1.pdf>, accessed May 2024

## Expanding Educational 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. Ribbon's NREN solutions are deployed in more than 10 countries across Europe and the rest of the world, providing higher education institutions with the capacity, security and agility they require in today's connected learning environment.

In 2023, Ribbon added Texas A&M University (TAMU) by providing our IP network transport solution for wireless backhaul for TAMU's private 5G research network. Designed specifically for the TAMU research community, the network connects the labs at the Internet Technology Evaluation Center (ITEC) with Engineering and Computer Science labs on TAMU's main campus, the public safety training area at Disaster City, and the labs and testbeds at TAMU's RELLIS Campus.

As one of the world's most advanced research centers, we require a state-of-the-art network to conduct testing in areas such as autonomous vehicles, robotics, advanced manufacturing, smart grids, software-defined networking, next generation wireless networks, and more. We must ensure we have the highest guaranteed performance for these mission critical communications.

**Michael Fox**  
Interim Executive Director, ITEC, TAMU





# SOCIAL IMPACT: OUR PEOPLE



# OUR PEOPLE

As a global company with employees in more than 30 countries, we focus on creating an inclusive global community, aligning our resources, processes and platforms to build a work culture that reflects and expresses our core values. This enables us to work efficiently across borders and functions. Our aim is to create a workplace that is engaging, inspiring, challenging, and inclusive. We strive to be a great employer for our current employees and for future employees who are seeking an opportunity to join our dynamic business, positioned at the nexus of global communications technology and social transformation.



Learn more >> [Our Position on Global Employment.](#)

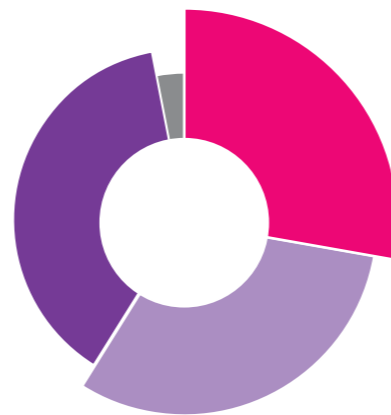
We offer Ribbon employees opportunities for personal and professional growth while maintaining a culture of open and transparent communications; everyone receives constructive performance feedback and is encouraged to offer new ideas about any aspect of the work we do and our ways of working. We leverage our core 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 2023 (year-end headcount)

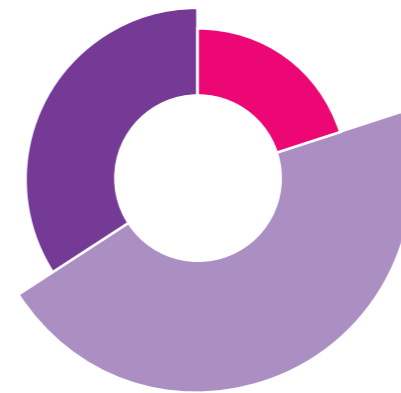
### EMPLOYEES BY REGION (2023)

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



### EMPLOYEES BY AGE GROUP (2023)

- 18%**  
Below age 30
- 47%**  
Age 30-50
- 35%**  
Above age 50



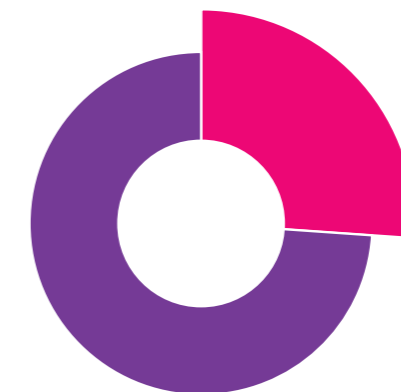
### EMPLOYEES BY GENDER (2023)

- 22%**  
Women
- 78%**  
Men



### NEW HIRES BY GENDER (2023)

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



# EMPLOYEE ENGAGEMENT

We deploy a range of measures to maintain employee engagement and motivation to contribute to our business success. A key channel for measuring the pulse of our employee sentiment and understanding what’s important to our employees is our annual Employee Experience Survey.

In 2023, 72% of employees participated in the survey (an increase of 2% compared to 2022), which combines multiple-choice and qualitative questions. The top three areas of employee satisfaction and key reasons for choosing Ribbon as an employer were:

- Technology and professional interest
- Work environment and flexible work model which enables employees to maintain a healthy work-life balance
- The people at Ribbon, including the direct manager, team and peers.



## Key areas of high satisfaction among employees in 2023

95%

indicated that they have clear goals and objectives for their work. (+5% on 2022)

91%

felt accepted and valued regardless of their gender, age, religion, ethnic background and other dimensions of diversity

91%

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

91%

indicated that they feel personally driven to help Ribbon succeed

89%

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

Employees also expressed their views about opportunities for improvement that would enhance their engagement with our company. The key areas noted were:

- Improved communication and understanding of Ribbon’s corporate strategy that all employees can relate to;
- Greater leadership presence and engagement with employees; and
- Additional resources to support employees with heavy workloads.
- Additional opportunities for employee advancement and career progression at all levels;

In 2023, we addressed opportunities raised in our 2022 Employee Experience Survey in three areas that were of most significance to our employees:

- **Advancement:** Continued to expand our learning and development offerings, including updates to our iLEAD and iGROW learning programs and additional self-directed learning via Udemy licenses and in-house training programs. We continued our leadership development for managers globally at all levels and deployed the new Ribbon Mentoring Program across the organization. We also enhanced our internal careers site to promote advancement opportunities internally to employees and updated our succession planning leadership and development plans for selected employees.
- **Communications and learning:** We refreshed our iTech program to provide employees in commercial roles with information and perspectives on advanced technologies and knowledge about Ribbon’s products and solutions.
- **Learning Week:** We also conducted a focused Ribbon Learning Week to reinforce key areas of knowledge among our employees.
- **Engagement with leadership:** Maintained quarterly Global Town Hall sessions and quarterly meetings with the Executive Leadership Team (ELT) for employees to increase interactions with our senior leaders and published periodical newsletters to update employees of business developments. The ELT also undertook site visits in all regions and spent time in discussion with employees.

We continue to deploy Viva Engage (formerly Yammer) as Ribbon's main employee communication tool and leverage this platform for monthly business updates and other relevant communications, allowing two-way communication and encouraging an open conversation culture.

Our Viva Engage platform includes more than **10** active communities including an **"all employee" community**. The platform generally hosts more than **7,600** interactions per day from our global community.



## Reward and Recognition

We believe in that an effective reward and recognition program both motivates employees and compensates them for their ongoing contribution to our business success. In 2023, we implemented our annual mid-year global compensation review, using external benchmarks to calibrate our compensation packages to remain attractive and competitive in our industry across all the countries in which we operate. This year, we paid special attention to junior level employees and specific geographies where market dynamics are more challenging. More than 750 employees received a salary adjustment and selected other employees received a stock grant under our Employee Restricted Stock Equity Program.

Ribbon's **"RealTime Rewards"** program enables employees to recognize the achievements and contributions of their colleagues and managers and reinforces a **"thank you"** culture. In 2023, approximately **2,940 rewards** were delivered to employees across our global operations who received a cash benefit of between \$25 and \$100 or other non-monetary recognition.

# 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 with greater responsibility in the future. In 2023, we continued to enhance our learning and development platforms, as mentioned above, which was a key area of importance for employees identified in feedback through our annual Employee Experience Survey.

## Core proprietary Ribbon Learning and Development Platforms

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



## Learning By the Numbers at Ribbon in 2023

.....  
**13**  
average learning hours per employee  
.....

.....  
**110**  
participants in Ribbon's global Mentoring Program  
.....

.....  
**21**  
live webinars in our development programs: iGROW, iTECH, iLEAD  
.....

.....  
**1,250**  
online learning licenses  
.....

.....  
**67**  
employees took part in 4 Leadership Development Programs  
.....

.....  
**175**  
employees took part in 6 Excellence in Service programs  
.....

A highlight of 2023 was the inaugural Ribbon Learning week that opened up five global virtual sessions to employees worldwide, providing an overview and update of our progress across R&D, Services and Sales groups. Between 300 and 500 employees attended each session, enhancing their knowledge about our offerings and empowering them to provide better information to customers.

# DIVERSITY, EQUITY AND INCLUSION (DEI)

We are committed to fostering and maintaining a diverse workforce and equitable policies and programs within a culture of inclusion. Improving opportunities for women to advance to management levels is a priority for Ribbon. Our aim is to create an environment where leaders buy into the value of belonging, both intellectually and emotionally, so that all employees feel valued and connected to our purpose.

## DEI Council

Ribbon's DEI Council, established in 2021, comprises leaders across 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 2023, 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 also organized educational seminars for employees, exploring different DEI topics and also worked across the organization to actively engage employees in supporting an inclusive culture through sharing of personal stories and perspectives.

## Advancing Women

We are committed to developing opportunities for women in management roles across Ribbon. This continues to be a challenging objective in a company such as Ribbon, with a modest global headcount in a sector that has not traditionally attracted women. We continue to work to deliver our target of 30% of Ribbon's management roles held by women by the end of 2025, and invest in supporting programs that will help drive achievement of this ambitious goal. We are confident that the programs we have in place will yield improved results in the coming years.

Looking ahead, I want to focus on increasing engagement and participation with employees at every level. It's important that we all participate and join together to help foster an inclusive, productive workplace cultures that support greater collaboration and innovation from a diverse workforce.

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



### Our 2025 Women in Management Target

#### Target

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

#### Progress in 2023

**17%** of management roles were held by women in 2023



## 61 women

were promoted to management or to higher level management positions in 2023.



**Our focus in accelerating women’s leadership at Ribbon encompasses four key strategies:**



**Educate**

Maintain education for gender diversity across the Company especially among business leaders and hiring managers.



**Recruit**

Ensure our recruitment processes provide adequate and equitable opportunity for women.



**Develop**

Provide targeted development platforms for women to build the skills and competencies necessary to advance.



**Connect**

Help women build effective networks within the Company and leverage available resources to succeed.

In 2023, we advanced several programs:


- **Women Leadership Program:** This program provides our women leaders with the skills needed to strengthen their managerial capabilities and impact within the organization, understand the challenges and obstacles unique to women and develop the tools to overcome them. The program enrolled more than 20 leading women in 2023, with an additional 30 women participating in a quarterly forum. Participants confirm the program has contributed to improved confidence, skills and expanded networks that empower them to contribute in more meaningful ways to Ribbon and to our communities.
- **Ribbon Women’s Business Community:** This forum connects and supports women employees through gender awareness and diversity initiatives, relationship building and career development. The program includes an industry speaker series, engagement with Ribbon’s executive leadership and other activities to address business challenges and innovation.
- **Annual Talent Review:** We continued to focus on targeted succession planning for women leaders to strengthen and develop greater readiness for a management role at different levels.

- **Mentoring Program for Women:** This program pairs women with senior leaders at Ribbon to help accelerate their personal and professional development.
- **International Women’s Day:** In 2023, we produced and distributed a video to recognize the talented women working at Ribbon around the world. In addition, many local activities were organized in several countries to appreciate and celebrate our women employees and raise awareness of our objectives to create more opportunities for women in management.



## Creating an Inclusive Work Environment

We continue to reinforce DEI in several ways. For example, the DEI aspects of leadership are integrated into our leadership development programs to advance our accountability for creating an inclusive work environment. We support the implementation of our policies and practices that promote equity and inclusion, such as diverse hiring, pay equity audits and mentorship programs. In 2023, we expanded our DEI training and awareness by offering all employees a number of educational webinars and workshops covering unconscious bias, gender equality in the workplace violence against women and more.



All new employees complete a **mandatory online tutorial** to enhance their DEI awareness and knowledge and all employees complete this annually to refresh their understanding.

We celebrate and promote significant events and special days across the world. We also engaged our employees to write about cultural issues important to them on our internal platforms to help raise awareness and understanding among our global population; employees wrote about the Lunar New Year, Ramadan, Juneteenth and other topics. We hosted webinars to celebrate different occasions and acknowledge their importance and relevance among our employee community.

Examples included: Martin Luther King Day, International Holocaust Remembrance Day, Black History Month, World Day for Cultural Diversity, Pride Month and the International Day for the Elimination of Violence against Women.

## DEI Awareness and Training

We continue to raise awareness of DEI issues to help our employees understand their role in promoting respect. DEI topics are regularly discussed in employee communications and integrated into our training modules as well as being available to employees through our online platforms. In 2023, we also rolled out updated training to all employees on Ribbon's Anti-Harassment and Anti-Discrimination Policy.



# EMPLOYEE SAFETY, HEALTH AND WELLNESS

The health, safety and wellbeing of our employees continues to be of paramount importance to Ribbon. We believe that all workplace accidents are preventable, and that with the right culture, training, and tools, we can achieve an injury free workplace.

All employees undertake mandatory health and safety awareness training every two years and all our operational sites are audited at least every three years in line with the ISO 45001:2018 occupational safety standard. Through the year we have expanded our health & safety surveillance to cover our largest 32 sites and have deployed an enhanced monthly, employee-led “walk around” as defined in our health and safety management system and risk assessments looking for hazards before they cause a problem.

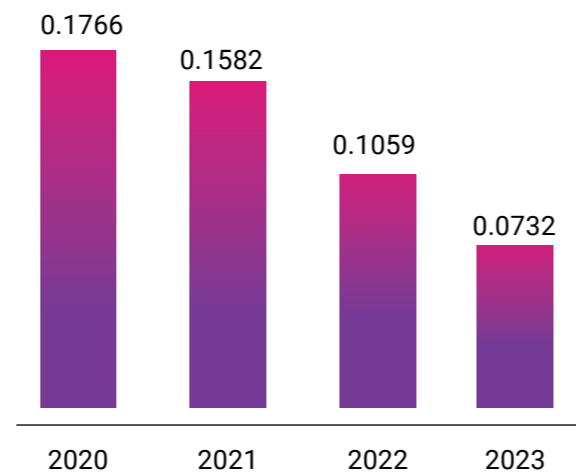
Additionally, our Real Estate team performs safety reviews with all contractors working in our facilities to ensure risks are identified and procedures in place to minimize the interactions between maintenance and other building users.



## Safe Working Practices

In 2023, we continued our focus on safe working practices and efforts to foster a culture of safety with regular training, safety assessments and reviews. Our Total Recordable Injury Rate improved for the sixth consecutive year, demonstrating continuous improvement and an aware and committed workforce and remaining consistently below industry acceptable levels.

**Total Recordable Injury Rate (total workforce)**



Specific actions taken in 2023, in addition to our regular health and safety practices included:

- Reviewing and enhancing our Global Health Policy and Safety General Risk Assessment. This defines the controls in place and further actions required as identified by our Global Risk Review, attended by top management.
- Employees training continues to be important with new training activities around the updated policy, first aid, fire evacuations and hazard identification.
- A new mobile tool was deployed to help participants be more consistent in surveillance of health and safety hazards. The tool facilitates instant reporting of issues identified and looks for patterns of hazards to identify global trends.
- Targeted focus on identified risks which, in 2023, included potential asbestos and noise hazards in our buildings. Detailed risk assessments in these areas were conducted and actions implemented accordingly to further protect all those working at or visiting our sites.

## Employee Wellness

In 2023, we continued to offer all employees a Wellness Program with a different theme each quarter including global and local activities and engaging challenges around topics relating to physical health, mental health, healthy eating and nutrition. Hundreds of employees participated and shared their experiences with the global team.



### Examples of Wellness Program Participation in 2023

#### 12,000 km

traveled by 275 employees from around the world participated in our walking and running challenges. In the first quarter of 2023. Several more miles were traveled through the remainder of the year.

#### 60

employees participated in our Smart Nutrition Workshop led by a certified nutritionist with live webinars, tips and recipes



We also continue to offer our Employee Assistance Program (EAP) to all employees and their families with customized programs and training to meet the varying needs of our global employees and leaders in all countries in which Ribbon operates. EAP is a confidential support service that is available to help our employees and their families at no cost to them, with toll-free access 24 hours per day, 7 days per week.

In addition, we launched a Mental Health Awareness Campaign, in partnership with our global EAP vendor, to offer a series of self-guided eLearning programs to all employees and leaders to provide them with some necessary tools for recognizing and supporting anyone who might be struggling with their mental health, including themselves.



# 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, employee-led groups, based at each of our major locations, continued to support and activate local initiatives and engagement that contribute wellbeing and quality of life in our local communities, including our annual Ribbon Global Day of Service.

## Ribbon Global Day of Service 2023

Since 2010, Ribbon provides 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 large global charities to local organizations that are close to the communities in which our employees live.

### Global Day of Service 2023 By the Numbers

More than **1,100** employees in 23 countries from 37 Ribbon sites

More than **5,100** hours of employee volunteering time

More than **40** charitable organizations supported



Whether it's a large team from one of our main offices or a remote worker participating individually, Ribbon employees take the time to have a positive impact. The sheer breadth of programs that our people support highlights the multiple ways in which we can offer help to others, something that can be easy to lose sight of alongside the other pressures of daily life.

**Petrena Ferguson**  
Senior Vice President of Human Resources

A selection of our Global Day of Service activities in 2023 included:

- **Canada:** Employees from Ottawa volunteered at a local shelter and performed a range of cleaning, maintenance and gardening activities.
- **Czech Republic:** Employees participated in the annual Run and Help charity run that raises money for people living with disabilities.
- **Germany:** Employees volunteered with organizations to help disabled adults in their daily routine.
- **India:** Employees from Chennai visited the Hope Public Charitable Trust which helps house special needs children and differently abled people of all ages. The team spent time interacting with residents and provided meal packs, stationery, drawing materials and other items.
- **Israel:** Employees supported a national food rescue non-profit organization by picking unharvested fruit and vegetables and packing them for distribution to those in need.
- **Italy:** Employees from Rome helped La Nuova Arca maintain its thriving bee community by repairing their hives and ensuring continued honey production as well as the health of the bees that are so essential to our food supply.

- **UK:** Employees volunteered in community parks and gardens to prune and plant trees.
- **U.S.:** Several teams from our sites across the U.S. volunteered with different programs including nature cleanups, sorting and packing food for distribution to those in need and supporting community garden and food-growing initiatives.

Throughout the year, employees engage to support our communities in similar ways, aligning with local needs. Our program in India, where we employ more than 1,100 people, is active throughout the year, meeting local regulation for corporate responsibility contributions. In 2023, the program prioritized children’s education by partnering with nine non-profits and two customer foundations with an overall contribution exceeding \$150,000. The non-profit selection process was a collaborative effort involving our employees through team discussions to identify organizations aligned with our values and making a positive impact in local society. Our collaboration involved more than just financial support: our teams in India actively engaged with selected non-profits during the year and on our Global Day of Service.

## Corporate Social Responsibility in India in 2023

### Selected nonprofit partners and activities

#### CHILDReach

charitable trust for schoolchildren with learning difficulties. Our support funded interactive boards, school fees and occupational therapy, music therapy and music lessons.

#### Ma-Niketan

orphanage for homeless girls. Our support funded school fees, school uniform and stationery for 110 schoolgirls.

#### Nanhi Pari Foundation

advances education, health and nutrition for girls. Our support funded 98 students’ fees for one year.

#### Sakshi

shelter for the education and rehabilitation of children in low-income areas. Our support funded a variety of educational materials and school equipment.

### Customer foundations supported

#### Bharti Foundation

the philanthropic arm of Bharti Enterprises, advances, among other things, education with a focus on girl enrollment in school. Our support covered part of the operational cost of running the Satya Bharti schools in Haryana state which have almost 40,000 pupils.

#### Vodafone Foundation

supports students from underprivileged communities for continuing education. Our support helped fund 25 teachers with expertise in technology, and digital tools to make learning fun.

In 2023, Ribbon was honored to receive the Bharti Foundation’s Changemaker Award for excellence in Corporate Social Responsibility in India, highlighting our contribution to supporting education for underserved children.

# ENVIRONMENTAL IMPACT



# ENVIRONMENTAL IMPACT

At Ribbon, we remain focused on minimizing our environmental impact across our operations, supply chain and product offerings. We have been on a decade-long journey to deliver fundamental changes in our operations to allow for a more sustainable energy mix, more efficient use of resources, robust environmental management processes and awareness, education and training for Ribbon employees and business partners.

We maintain a global Environment Management System (EMS) in accordance with ISO 14001:2015 Environmental Management Standard. All our primary facilities are certified to this standard and all smaller sites apply the same system and processes. Our management team commits the resources required to implement real action, based on our Global Risk Reviews, and both the Ribbon Board of Directors and the Senior Leadership Team regularly review our performance.

Our efforts have resulted in considerable improvements across several environmental impacts, a broadened scope of environmental metrics reported and greater disclosure accuracy with the support of a global ESG software data management system adopted in 2020. For the first time in 2023, we assured our energy and emissions data using a third-party CDP-accredited expert.

# CLIMATE CHANGE

As a company in the information technology and telecommunications (ICT) sector, we play an important role in accelerating progress on the mitigation of climate change, enabling a low-carbon economy through advanced technologies for our customers.

Ribbon prioritizes resourcing to mitigate the effects of climate change in our operations and focuses on specific climate related risks identified in our annual Business Impact Assessment.



## 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 2023

**5% reduction**

of Scope 1+2 CO<sub>2</sub>e emissions in 2023 compared to 2022

### Progress since base year

**33% reduction**

of Scope 1+2 CO<sub>2</sub>e emissions compared to 2018



## Improving Data Accuracy and Comprehensiveness

In 2023, we completed a thorough review of our energy and emissions data going back to our base year of 2018 to ensure that our data is robust and complete as we continue to expand our reporting scope and establish more ambitious targets. In particular, we focused on reviewing our 2018 base year assumptions and data to ensure changes in subsequent years were adequately reflected against an updated reporting threshold for site inclusion.

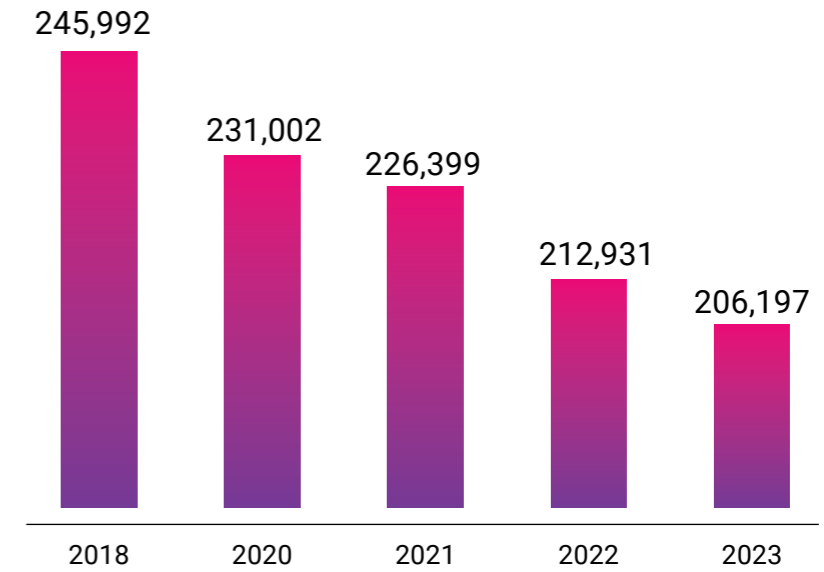
This was a comprehensive dataset improvement. Given the nature of our operations, our operational sites may expand, contract and relocate in order to position our facilities in proximity to major customers for efficient collaboration (see section: Optimization Program at Global Sites). As part of this review in 2023, we established a revised threshold for inclusion of sites for data reporting. This more accurately reflects our current operations and ensures inclusion of all relevant sites since 2018 and in each subsequent year, including sites added through mergers and acquisitions. The new dataset, which covers more than 95% of our operational environmental impact, includes sites that:

- Support a laboratory facility, or
- Support a warehousing facility, or
- Employ more than 15 people.

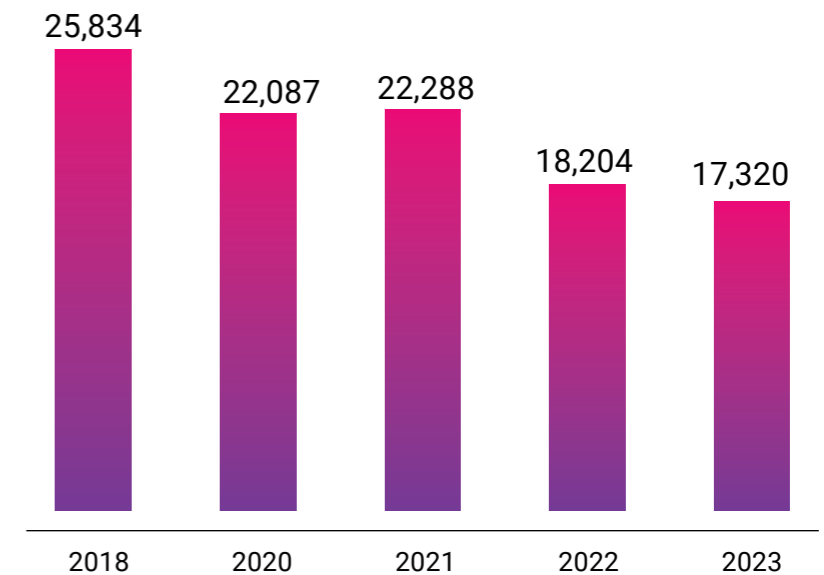
In revising our reporting in line with this threshold, we examined data for all sites going back to 2018, taking into account site closures, relocations and energy consumption, using actual energy invoices stored in our systems for all years. At the same time, we took the opportunity to review our greenhouse gas (GHG) emissions factors over the years, using market-based factors where relevant. This intensive review resulted in more comprehensive and accurate data for the years 2018 through 2022, all of which are reflected and restated in this report, alongside data for 2023, which were also independently externally verified. All global energy and emissions data for 2023 were verified by a CPD-accredited assurer.

In 2023, we reduced total Scope 1+2 GHG emissions by another 5%, bringing our total reduction to 33% since 2018. This exceeds our climate target of 30% reduction by 2030, seven years ahead of time. We will continue to drive further efficiencies and hope to maintain this performance as we consider our next phase of target-setting, which may include adoption of a Net Zero Emissions target.

**Total Energy Consumption (GJ)**



**Total GHG Emissions (Scope 1+2) MT CO<sub>2</sub>e**



## Reducing Ribbon’s Carbon Footprint

Ribbon’s certified Environmental Management System (EMS) is very mature and has been delivering results for the company for over 15 years. It is used to track our consumption and our waste in our operations. This includes plastic, paper and other material purchases, energy purchases and water & natural gas usage and overall refrigerant usage. Ribbon’s carbon footprint is disclosed as an output of our EMS.

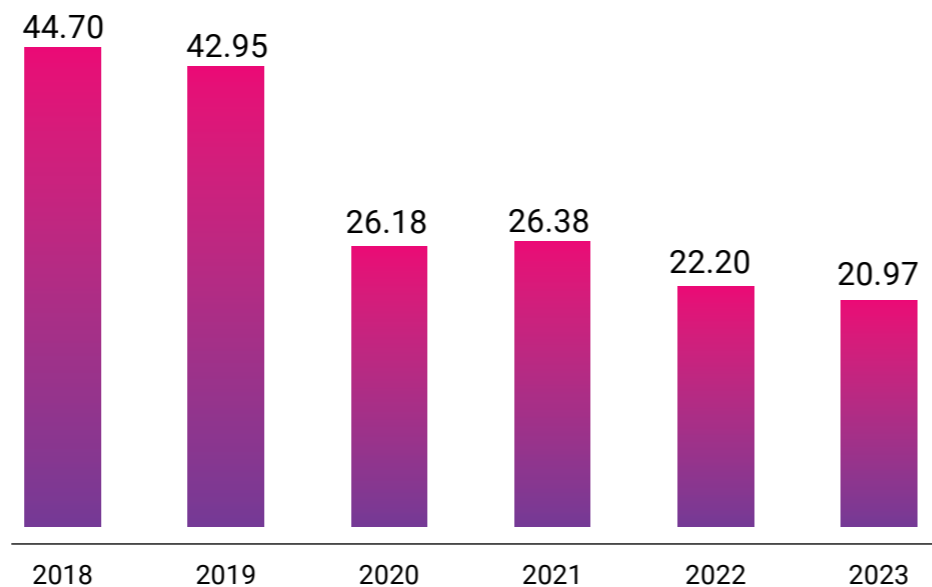
Electricity accounted for 87% of our total energy consumption worldwide in 2023. We therefore continued to focus on improving our electricity efficiency and deploying renewable energy sources where possible to minimize our GHG emissions. Our actions in 2023 included:

- Maintaining energy efficiency measures supported by energy audits and implementation of identified potential energy savings;
- Completing our program of conversion to LED lighting at all our sites;
- Switching energy provider in Bengaluru India, where we now receive Renewable Energy for our operations; and
- Continuing to optimize our global site operations by resizing and relocating sites to be closer to customers and reduce surplus space (see section: Optimization Program at Global Sites).

Going forward, we continue to explore opportunities to further reduce the carbon footprint of Ribbon’s ongoing operations.

For more about our approach to climate change and environmental efficiencies, see our [Environmental Policy](#).

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



## Optimization Program at Global Sites

Ribbon continues to occupy 67 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; and
- Data centers for running our internal operations.

All facilities house operational telecommunications equipment in the form of server racks, cabinets and electronic equipment with supporting cables and components. Each site requires a reliable 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 with the latest refrigerants, and reducing overall equipment inventory.

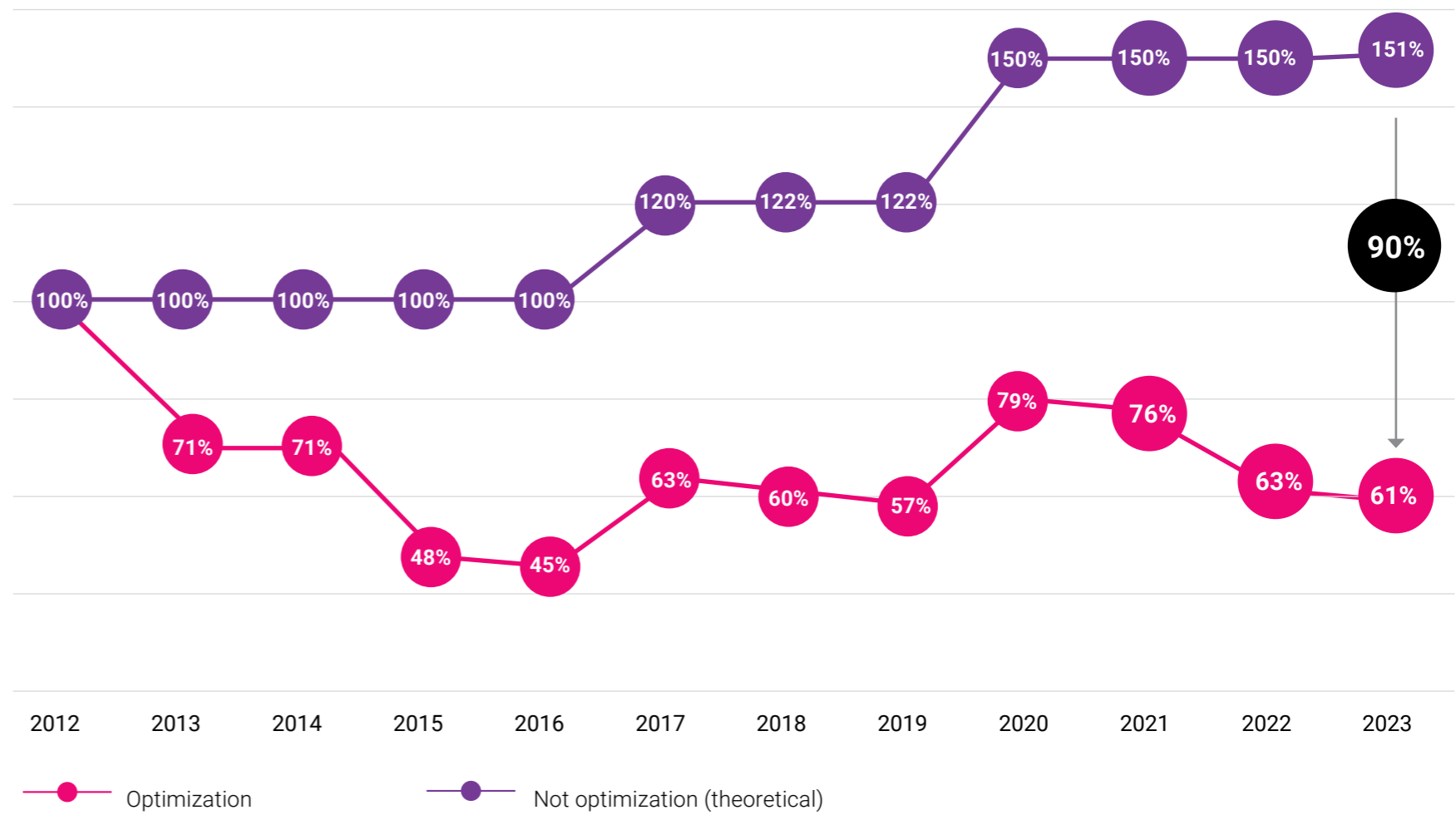




By the end of 2023, we again reduced the number of equipment racks in our laboratories, delivering a total reduction of 61% since the start of our optimization program in 2012. Without these optimization efforts, the number of equipment racks and their associated cooling and power consumption would have increased significantly over the same period of time.

We have reduced the footprint of our labs by over 90% comparatively, significantly reducing the energy consumption of our lab operations.

### Equipment Optimization Program



### Scope 3 Emissions

We continue to improve our Scope 3 emissions reporting with the aim of reducing our indirect impacts. Overall, in 2023, our Scope 3 emissions dropped by 3% to 11,093 metric tons of CO<sub>2</sub>e. The main changes versus 2022 were:

- **Reduction (19%)** in purchased goods and services (Category 1) reflecting the efficiencies and overall reduction in scope of work at our key contract manufacturers. We now incorporate the historical carbon footprint of six contract manufacturers, up from three in previous years. We are working on expanding the scope of our reporting in this category to include additional suppliers and vendors, and expect Category 1 emissions to increase in the future, even though we are working across our supply chain to collaborate to minimize emissions.
- **Reduction (6%)** in emissions from business travel (Category 6) reflecting good control across our global operations and use of online meeting and training tools wherever possible.

- **Increase (40%)** in employee commuting (Category 7) due to a change in vehicle policy resulting in more employees using their own vehicles to drive to work, rather than using company vehicles which would have previously been reported as Scope 1 emissions.

In addition, we are investigating the “energy in use” for the lifecycle of our hardware delivered to customers in the hope that we can reflect the improvements by R&D in the power efficiency of our solutions. We hope to report the “whole life energy” at the customer sites for all our hardware sold each year and report Category 11 Scope 3 emissions in our next report.

Scope 3 Categories 2, 8, 10, 13, 14 and 15 do not apply to Ribbon's business.

# RESOURCE EFFICIENCY IN OUR OPERATIONS

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.

## Reducing Waste

We maintain several initiatives to reduce the packaging weight of our products and utilize environmentally preferable packaging options. In particular, we have placed significant focus this year on the elimination of single-use plastics and have continued to advance this objective at all our facilities, engaging both employees and suppliers in our efforts to reduce plastic waste. We have taken several measures including:

- Terminating procurement of bubble wrap packaging and using alternative materials;
- Replace plastic pallet straps with fortified paper straps ;
- Replace shipping plastic tape with paper tape;
- Ending the purchase of bottled water and installing water fountains; and
- Removal of all single use plastic canteen cutlery and portable food containers.

**Our program for the reduction of single-use plastics in our office operations around the world has been very successful. In 2023 alone, we have avoided the procurement of more than 125,000 single-use water bottles, saving more than 3 MT of plastic waste. Additionally, we have upgraded tea and coffee machines with “bean to cup” services to reduce single-use capsules.**

## Conserving Water

Water usage is modest at Ribbon sites and in our production facilities with our main consumption being for use as drinking water and for hygiene and catering. However, we know that water is not effectively metered by all the landlords of our leased facilities and we continue to exert influence to improve water monitoring at these facilities. With increased demand from Ribbon and other users, landlords are investing in improved water metering. We expect this will increase the accuracy of our water usage reporting in the future.

In 2023, our water consumption reduced by 11% compared to 2022, a reflection of ongoing efficiency efforts. All our large facilities use water conserving plumbing to minimize water consumption.

We have worked with the World Resources Institute to classify the water stress at thirty of our largest sites and have established business continuity plans in the event of a loss of drinking water.

## 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.

# PRODUCT SUSTAINABILITY

Our “design for sustainability” approach means that we 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 more than 10 years, we have invested in optimizing our Apollo product platform to deliver higher traffic loading while reducing the power needed for operations. Our modular approach enables customers to expand capacity seamlessly without the need for additional physical assets, or the need to replace old equipment, offering resource-efficient solutions for the evolving needs of our clients and the large groups of users they serve.

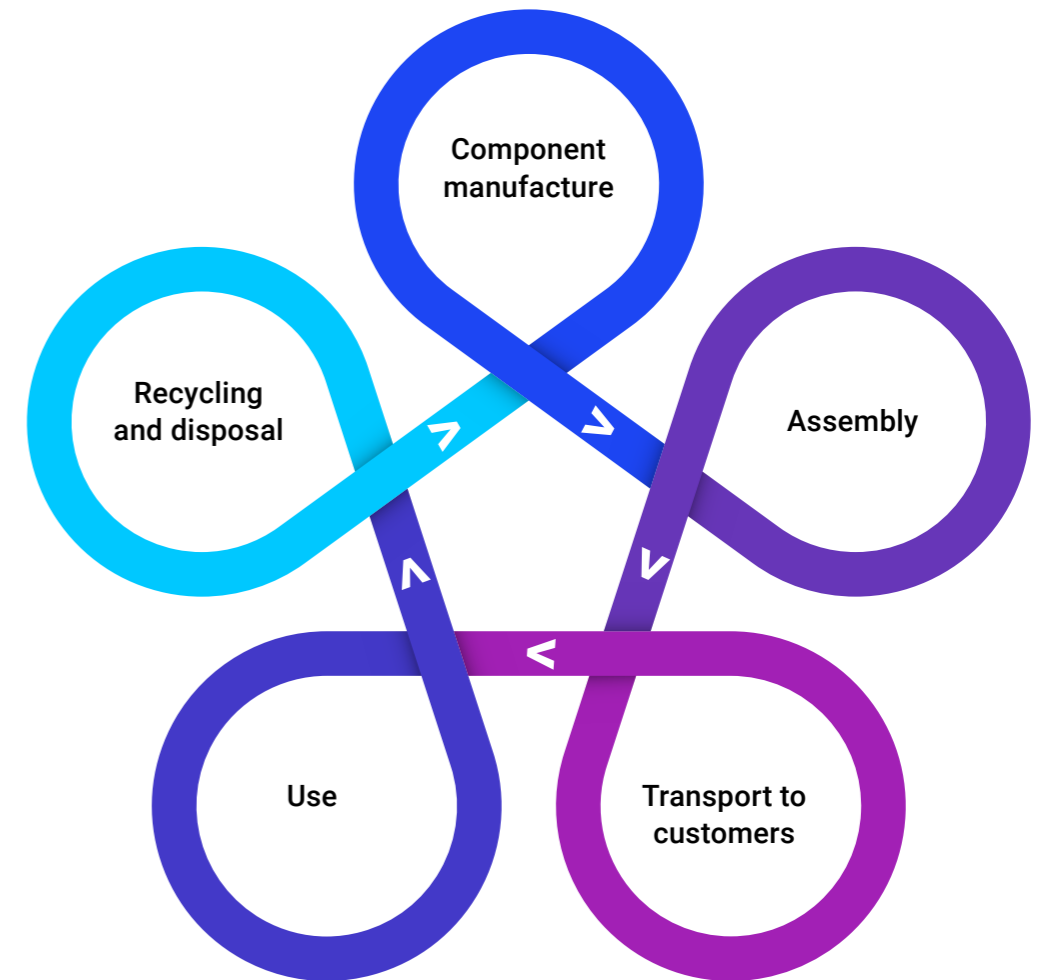
Driving efficiencies in data center operations is a critical element of reducing GHG emissions from electricity consumption in our industry and mitigating climate change. To help address this challenge, we continuously optimize data transport products and optical networking hardware to reduce power consumption in the use phase, enabling our customers around the world to benefit from lower environmental impacts.

## Analyzing the Lifecycle of our Products

In 2023, we commenced a program of Life Cycle Analysis (LCA) studies on our SBC products to help identify opportunities to reduce their overall carbon footprint, starting with the design phase. Product LCAs enable our customers to evaluate the whole life impacts of our products and make informed choices that can support their own sustainability programs in addition to traditional purchase parameters such as functionality, service and price. LCAs were completed using the ISO14040 Environmental Standard for Life Cycle Assessment on our Ribbon 7000 and Ribbon 5400 Session Border Controllers (SBCs), two products in highest demand from our customers. Both SBSs are designed for communications service providers and large enterprises for multimedia communications. We plan to analyze additional products in the coming years.

Our LCAs covered a lifecycle span of 15 years across five key LCA phases.

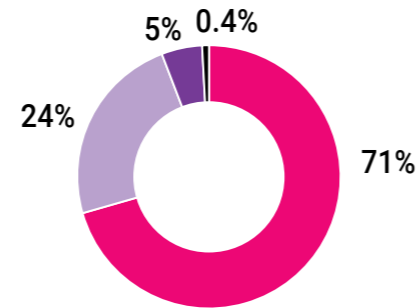
Key LCA Phases



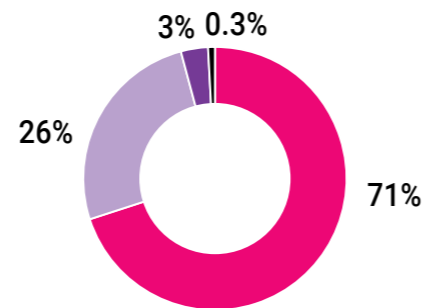
The overall results for both products were similar, with the most significant impact occurring in the use phase, where 71% of the total product impact is generated through electricity deployed by our customers. The manufacturing stage represents 24-26% of the life-cycle impact, generated mainly through active electronic components (such as diodes, transistors and integrated circuits) and the production of the printed circuit boards. The remaining small impacts relate to other impacts such as transportation.

**Ribbon SBC LCAs, 2023**

Lifecycle Impact of Ribbon SBC 5400



Lifecycle Impact of Ribbon SBC 7000



- End-of-life transport and processing
- Transportation to customer
- Manufacturing
- Customer use (15 years lifespan)

While these results are not unexpected, they critically reinforce the need for sustainable product design that reduces power needs in the use phase over the lifetime of our products. Our significant investment in R&D and continuous improvement in this area delivers benefit in terms of reducing the lifecycle impacts of our products. Additionally, we see the potential to reduce our manufacturing impacts, and continue to work in-house and with our contract manufacturers to seek improved carbon performance.

We encourage customers to adopt responsible end-of-life approaches and we offer a service for customers to recycle Ribbon hardware when needed.

## Improving sustainable product packaging

In 2023, we updated our packaging policy to emphasize the use of environmentally friendly materials when packaging our products. Examples of environmentally friendly packaging we approve include:

- Recycled paper-based materials
- Post-consumer waste (recycled) corrugated board
- Non-toxic food-grade glues
- Recyclable foams
- Recyclable plastics
- Inks containing less than 2% volatile organic compounds
- Packaging consisting of > 50% organic materials for energy reclamation



We have set an internal goal of **90% recyclable or reusable content in all our packaging materials.**

# GOVERNANCE AND ETHICAL CONDUCT



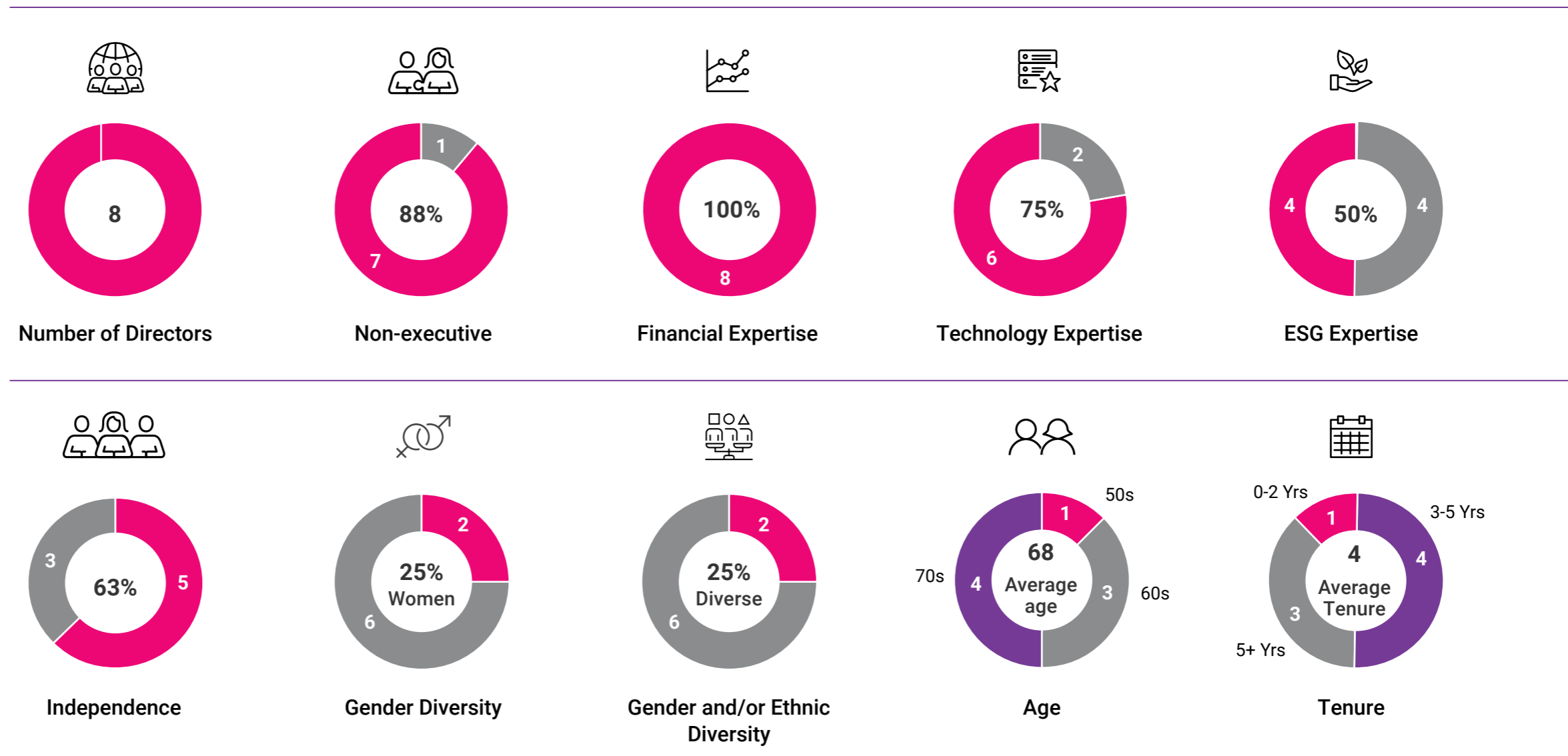
# CORPORATE GOVERNANCE

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, 2023)



## Board Committees

Our Board has four standing committees: the Audit Committee; the Compensation Committee; the Nominating, Sustainability 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, Sustainability and 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 (ISMS)
- Health and Safety at our facilities (HSMS)
- Environmental Management System (EMS)

In 2023, our risk review yielded the following key actions arising to address risk management and mitigation including:

- Improve monitoring and performance regarding climate change impact on our customers and Ribbon's impact on climate change, including meeting regulatory performance and disclosure requirements, through expansion of Scope 3 data collection and implementation of Life Cycle Analysis on additional products;
- Expand risk mitigation measures in our global supply chain through improved monitoring and auditing of key suppliers;
- Improve security across our operations by reinforcing our sites to protect against security breaches; and
- Improve plans to address continuity of water supply to facilities at risk of future water scarcity.

Many of these actions are in progress and disclosed in relevant sections of this report.



## 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 in our Customer Operations, Professional Services and R&D Programs.

Our BCMS is mandated by Ribbon's Executive Management Team and is certified to the requirements of the ISO 22301:2019 Standard. Each year we perform a thorough 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 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 Business Continuity Certifications each year. In 2023, 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 2023, Ribbon was not subject to any enforcement agency investigations, fines or sanctions related to noncompliance in any area of our business including but not limited to corruption and bribery.



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

## Anti-Corruption

Ribbon adopts a zero tolerance stance with regard to corruption, bribery and any other form of illegal. Ribbon strongly believes that businesses that stand against corruption and bribery foster trust among stakeholders and stockholders, protect themselves and their employees from risk and contribute to the development of a fair and orderly society for the benefit of all.

Each year, the Company's Chief Legal Officer conducts an in-depth corruption risk assessment exercise to identify and address areas of risk in Ribbon's global business. Ribbon was not the subject of an investigation or other enforcement action for corruption or bribery anywhere in the world in 2023.



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 stockholders and 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 the cornerstone of our ethics program and sets forth the Company's unwavering expectation that all employees behave in an ethical and lawful manner in their work for Ribbon. This expectation is made clear to all employees throughout the employment relationship with Ribbon. Specifically, every candidate for employment at Ribbon must pass a lawful background check to ensure that no individual with a job-related conviction (including those related to ethics) joins Ribbon and agrees to read and abide by the Code of Conduct as a condition of employment. All newly hired employees undergo an intensive period of orientation which includes ethics training on a variety of topics.

On an annual basis, every Ribbon employee—from the CEO to the most junior employee—is required to confirm they have reviewed the Code of Conduct, continue to abide thereby, complete a survey focused on corruption and bribery and perform relevant ethics training courses, all to ensure that the ethical principles in the Code of Conduct remain top of mind for all employees throughout their employment with Ribbon. To further ensure that Ribbon's culture of ethical excellence continually proliferates throughout the workplace:

- Ribbon's Legal Department regularly issues communications to employees reminding them of the Company's commitment to ethical excellence, the consequences for unethical conduct and the reporting options available to them;
- executive leaders address the importance of ethical conduct during employee townhall meetings; and
- eye-catching ethics posters are posted online and on internal office notice boards.

In 2023, 100% of active employees completed the annual mandatory Code of Conduct review and survey, 100% of all new hires completed the mandatory ethics training and Code of Conduct review as part of their new hire orientation, and all active employees completed the mandatory ethics training, as monitored by our legal and internal audit teams.



## 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 did not receive any substantiated reports of corruption or bribery from employees in 2023.

## Human rights

In 2023, we reviewed and updated our detailed Human Rights Risk Assessment covering Ribbon's direct workforce across our operations globally. The Assessment conducted using the United Nations Development Programme Human Rights Risks in Business Operations guidelines, which align with the United Nations Global Compact Principles, aims to identify Ribbon's current level of adherence to human rights practices and procedures and opportunities for improvement. We use this risk assessment as a significant pillar in our annual Global Risk Review. We continued to address 36 risk areas and relevant risk mitigation controls in each area and took action to further mitigate risk.

For example, we conducted a comprehensive updated global review of living wage levels in all our countries of operation, using the most reputable sources for living wage information in each country, and confirmed that all Ribbon employees everywhere receive a living wage in line with these guidelines as a minimum, and exceed these guidelines in many cases.

## Information Security

Ribbon is committed to providing secure and trustworthy communications technology solutions for our customers and we maintain annual external ISO 27001:2022 certification across our corporate financial and customer support organization. We value the information flows and processes that are essential for our business and respect the trust our customers place in us, driving with the highest standards of integrity and security by embedding features into our products at every stage of the product lifecycle. We continuously analyze, improve and adapt to the changing cyber landscape and the evolving needs of our customers. Our cybersecurity strategy is based on four pillars:

- **Prevention:** Implement proactive measures to prevent cyber-attacks and minimize risks. We use best practices and industry standards to secure our systems, networks, and data. We also educate our employees and customers on cybersecurity awareness and best practices.
- **Detection:** Monitor our systems, networks, and data for any signs of compromise or breach. We use advanced tools and techniques to detect and analyze cyber threats and incidents. We also collaborate with external partners and authorities to share threat intelligence and best practices.

- **Response:** Respond swiftly and effectively to any cyber incidents that may occur. We have a dedicated cyber incident response team that coordinates and executes the response plan. We also communicate transparently and promptly with our stakeholders and regulators.
- **Recovery:** Restore our systems, networks, and data to normal operations as soon as possible after a cyber incident. We also conduct a thorough investigation and root cause analysis to identify and address any gaps or weaknesses. We also implement lessons learned and best practices to improve our cyber resilience.

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 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. We implemented several initiatives in 2023 to enhance our Data Loss Protection capabilities to further protect Ribbon, our customers and our employees. We maintain annual ISO 27001:2022 certification across our corporate financial and customer support organization and in 2023, we implemented improvements to several security policies and to align with the new ISO 27001:2022 standard, and to clarify various control implementations. We also invested in the upgrade of several new cyber security tools to improve our threat hunting and detection capabilities. No major non-conformances were discovered through our certification audits in 2023.



### Learn more:

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

As cyberthreats continue to increase in sophistication and complexity, we must respond with equally advanced protection systems. A day does not go by at Ribbon without consideration of improvements to our information security programs and practices.

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

## 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 across the company which supports Ribbon’s compliance with relevant data protection laws around the world, including compliance with evolving privacy regulation in the U.S India, Canada, Australia and elsewhere.

We pay special attention to the processing of customer and employee data in order to maintain appropriate privacy practices and safeguards within the scope of Ribbon services. This includes maintenance of an active vendor risk management program and designing Ribbon’s products and services with Privacy by Design (PbD) principles in mind.

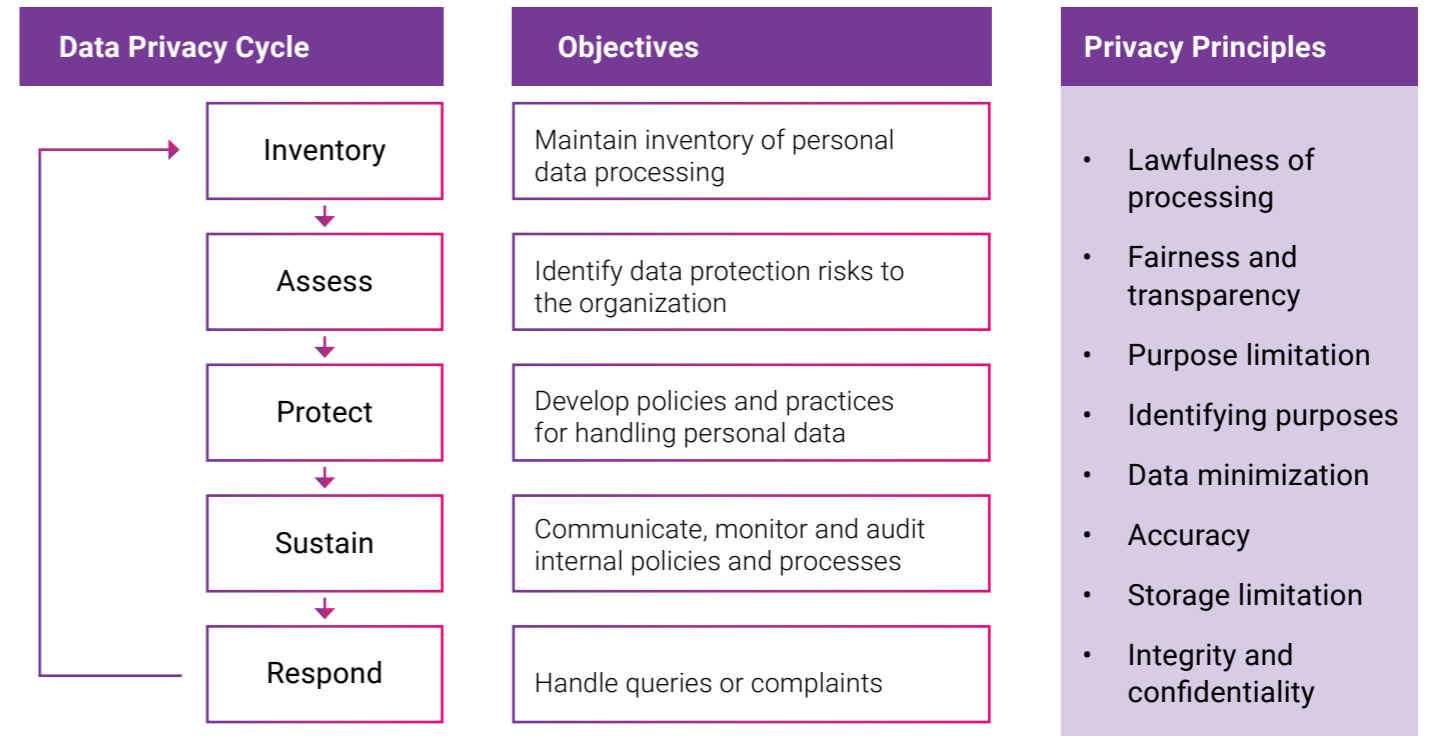
Overall executive direction of our data protection program resides with Ribbon’s Chief Legal Officer who also serves as the Data Protection Officer (DPO) for certain Ribbon entities. Ribbon was not subject to sanctions by data privacy enforcement agencies in 2023.

In 2023, we were active in advancing data privacy measures in the following ways:

- 93 data protection assessments executed
- 133 customer data protection related engagements
- 121 supplier data protection related engagements
- 3338 data protection training units completed by Ribbon employees
- Self-certification to the EU/UK/Swiss-US Data Privacy Framework (DPF)

## 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 are [self-certified](#) under the EU/UK/Swiss-US Data Privacy Framework (DPF) program. For more insight regarding Ribbon’s approach to data protection and the personal data processed by Ribbon, please see our [Privacy Policy](#).

# 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). In 2023, we revised our SCoC to align with the Responsible Business Alliance standard v8.0, and continued to implement enhanced mechanisms for monitoring supplier conformance as we aim to meet our strategic supply chain target by 2025.



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 2023

**21%** of our Tier 1 suppliers were audited against our Supplier Code of Conduct in 2023 by independent external auditors. Additional audits representing 14% of our Tier 1 Suppliers are scheduled for 2024, which will enable us to meet our 30% target.



**Tier 1 suppliers audited in 2023 against Ribbon’s Supplier Code of Conduct represent 52% of our total supply chain spend.**

Ribbon’s extended supply chain includes more than 5,000 active suppliers of goods and services across all our business units globally. Of these, we engage third-party manufacturers to build core components. In 2023, the following contract manufacturers accounted for at least 40% of our total supplier spend and 100% of product manufacturing.

- Eastcom Group
- Flextronics
- Hawkeye Technologies
- Maysteel Porters
- Sanmina Corporation

In addition to these contract manufacturers, we identified a total of 14 suppliers that represent our critical Tier 1 supply base, and in 2023, we commenced our program of external supplier audits against our SCoC that we have been developing over the past two years. Our audits cover all primary ESG dimensions 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
- Total waste, responsible disposal 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

While zero critical findings arose from our contract manufacturer audits, opportunities for improvement in documentation and communication processes and some performance areas were identified as follows:

- Evidence of emergency preparedness
- Disclosure of workforce human rights data
- Energy and water reduction strategies
- Valid certifications to ISO Standards
- Improved carbon footprint reporting to Ribbon for use in Scope 3 disclosures

We are actively addressing these issues with our suppliers and expect to resolve all issues during 2024, supported by quarterly monitoring for a period of at least two years. In 2024, we will also complete audits of two more contract manufacturers and expect to complete audits of all Tier 1 suppliers by 2025.

Additionally, we maintain a collaborative relationship with the Joint Audit Co-operation (JAC), an industry initiative of telecom operators with the common objective of raising social, environmental and ethical standards within the ICT supply chain. The initiative monitors the social, environmental and ethical conditions of common supply chains of the telecom operators with an aim to raise supply chain standards for people and the wider environment. In 2024, we hope to extend the monitoring of our Tier 2 supply chain in collaboration with JAC.



Learn more >> <https://jac-initiative.com/>

Beyond these specific supplier audits, Ribbon did not receive any reports of alleged violations of the Ribbon SCoC across our extended supply chain in 2023.



## Product Quality

Ribbon is committed to complying with applicable environmental legislation and regulations in all countries and we voluntarily certify our key sites to several quality management standards and aim to apply the same standards to operations at non-certified sites.

### Our Quality Certifications

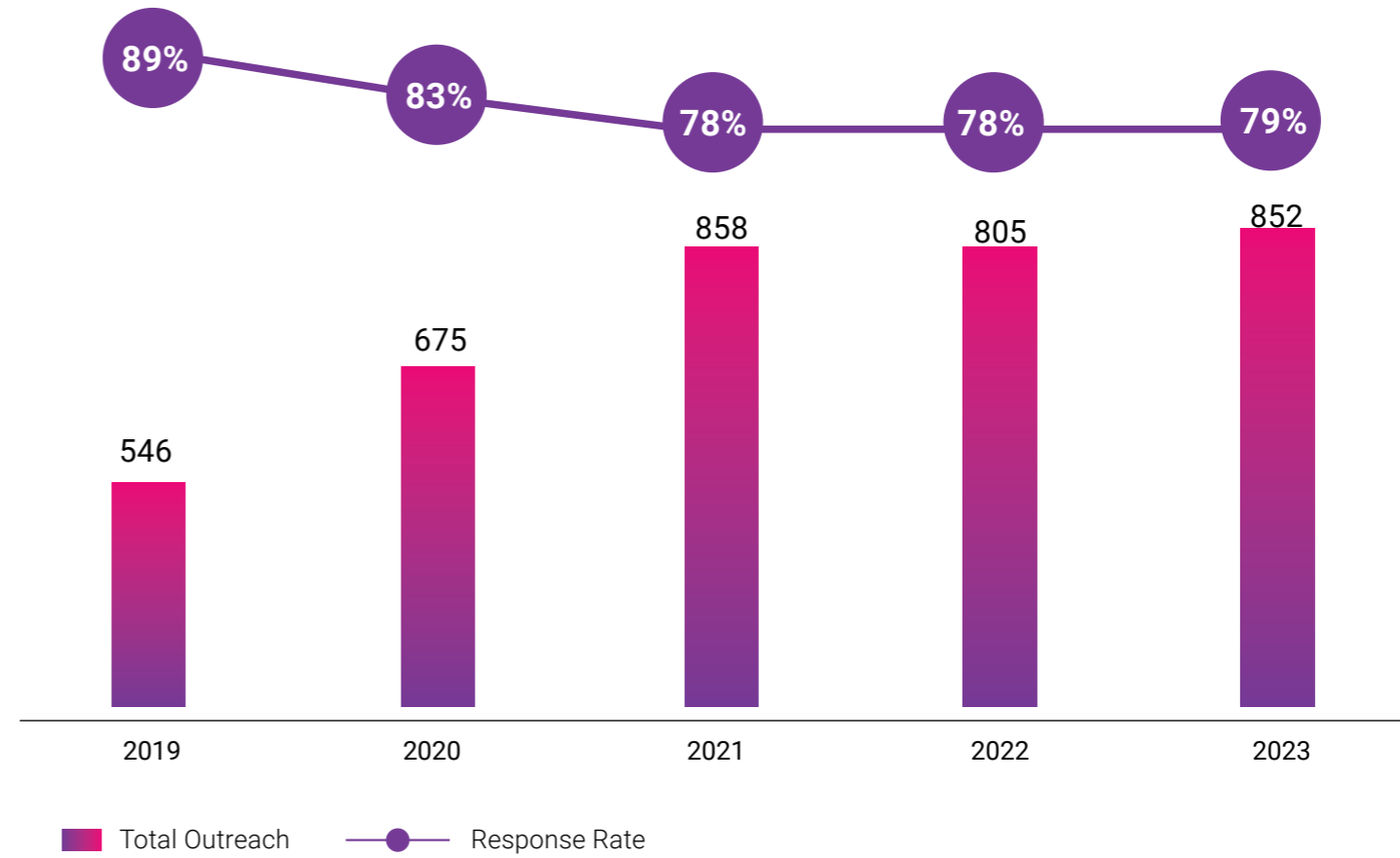
- **ISO 9001:2015:** Quality Management System (QMS)
- **ISO 14001:2015:** Environmental Management System (EMS)
- **ISO 17025:2015:** Laboratory Testing Competency
- **ISO/IEC 27001:2022:** Information Security Management System (ISMS)
- **ISO 22301:2019:** Business Continuity Management System (BCMS)
- **ISO 45001:2018:** Safety Management System
- **TL 9000: R6.3/5.7:** Quality Management System (QMS)
- **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 2023, Ribbon contacted 852 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. This is an increase of 7% compared to suppliers contacted in 2022. The information obtained from suppliers enabled further investigation to identify conflict minerals risk in our extended supply chain. We continue to engage with suppliers who have not yet responded in order to complete our overall conflict minerals risk exposure analysis.

### Overview of Supplier Outreach and Response Rates



See our [Conflict Minerals Policy](#) and our [2023 Conflict Minerals Report on Form SD](#).

**79%** of suppliers provided responses to our conflict minerals survey.



# APPENDIX



# ABOUT THIS REPORT

This is Ribbon Communications' fifth 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 2023.

Data in this report relate to the 2023 calendar year and prior years where noted, and includes examples of practice and operational updates through 2023. Our last Sustainability Report covered the year 2022 and was published in 2023. This report was published in mid-2024. 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 Report on Form 10-K.

For our 2023 Annual Report on Form 10-K, please see: <https://investors.ribboncommunications.com/static-files/4350c71a-72d9-4a01-b219-2f117b3c1c03>

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. We also disclose in line with the Sustainability Accounting Standards Board (SASB) Technology Hardware Standard and provide 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.

Energy and emissions data in this report were verified by an independent third party. The Assurance Statement can be viewed [here](#). All other information and data undergoes robust monitoring and tracking and are confirmed through internal checks, audits and quality certifications by third parties.

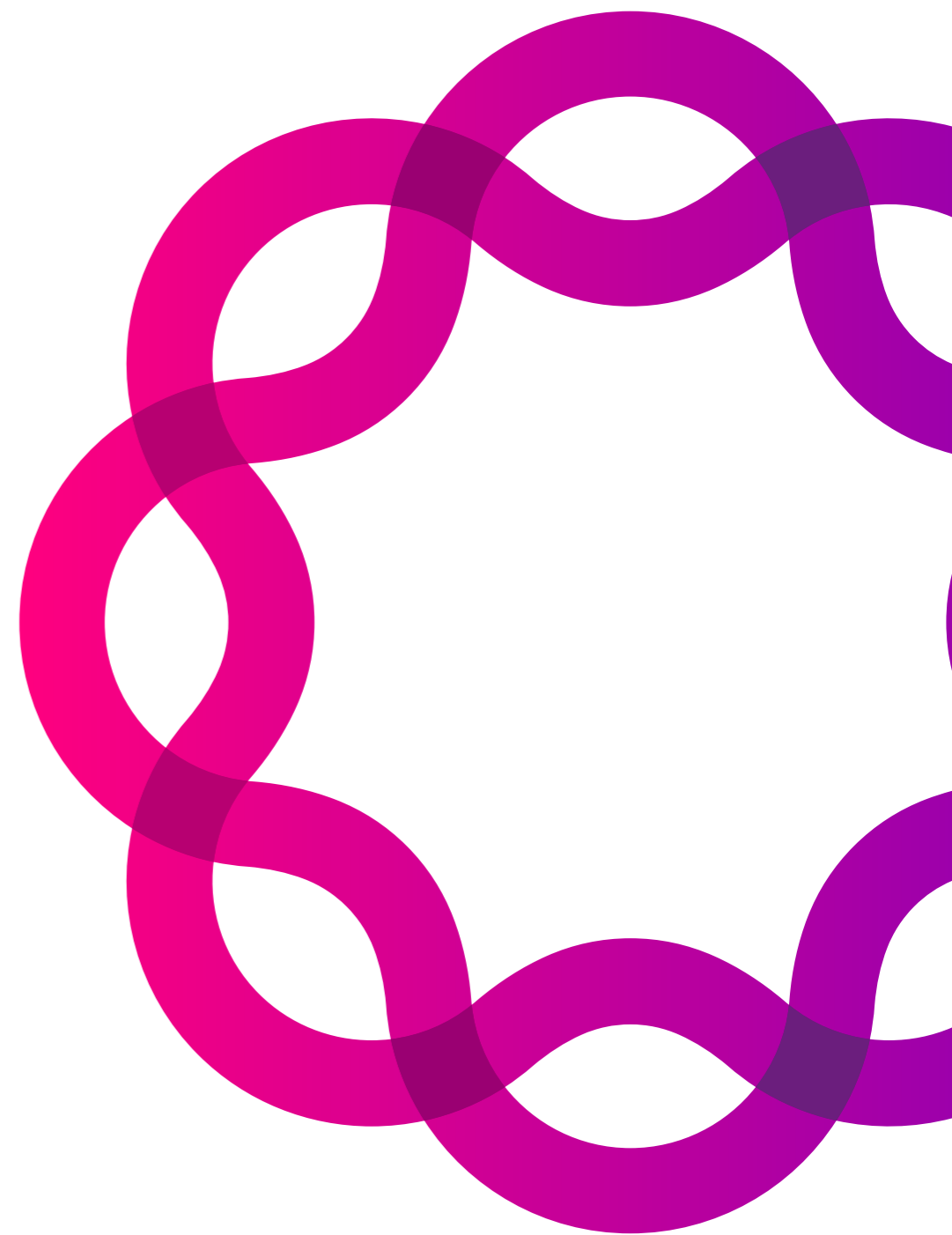
Data and information in this report may differ from information published in Ribbon's Annual Report, due to the different nature of disclosures and methodologies. In such cases, for regulatory disclosure requirements, the Annual Report takes precedence. In the event of any perceived discrepancy, or any 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)



# GLOSSARY

**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.



# GRI CONTENT INDEX

<b>Statement of use</b>	Ribbon Communications has reported in accordance with the GRI Standards for the period January 1, 2023 to December 31, 2023.
<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	pages 5,6	
2-2 Entities included in the organization's sustainability reporting	page 47	
2-3 Reporting period, frequency and contact point	page 47	
2-4 Restatements of information	Energy and emissions data have been restated, see page 52.	
2-5 External assurance	page 47	
2-6 Activities, value chain and other business relationships	pages 5,6	
2-7 Employees	page 52	
2-8 Workers who are not employees	page 52	
2-9 Governance structure and composition	pages 38,39	
2-10 Nomination and selection of the highest governance body	page 39	
2-11 Chair of the highest governance body	page 39	
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="#">2024 Proxy Statement, pages 25,26</a>	
2-16 Communication of critical concerns	This information is considered sensitive/confidential.	
2-17 Collective knowledge of the highest governance body	page 38	
2-18 Evaluation of the performance of the highest governance body	This information is considered sensitive/confidential.	
2-19 Remuneration policies	<a href="#">2024 Proxy Statement, pages 37-50</a>	
2-20 Process to determine remuneration	<a href="#">2024 Proxy Statement, pages 37-50</a>	
2-21 Annual total compensation ratio	<a href="#">2024 Proxy Statement, page 61</a>	
2-22 Statement on sustainable development strategy	page 2	
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 41	
2-27 Compliance with laws and regulations	<a href="#">Our Approach to Human Rights</a>	
2-28 Membership associations	page 52	
2-29 Approach to stakeholder engagement	page 52	
2-30 Collective bargaining agreements	page 53	
<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> and page 8	

# GRI CONTENT INDEX: MATERIAL DISCLOSURES

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 40
	GRI 205: Anti-Corruption 2016	205-3	Confirmed incidents of corruption and actions taken	No incidents.
	GRI 419: Socioeconomic Compliance 2016	409-1	Non-compliance with laws and regulations in the social and economic area	page 40
<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 54
		302-3	Energy intensity	page 54
	GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	page 55
		305-2	Energy indirect (Scope 2) GHG emissions	page 55
		305-3	Other indirect (Scope 3) GHG emissions	page 55
		305-4	GHG emissions intensity	page 56
<b>Cybersecurity &amp; information security</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	<a href="#">Our Approach to Information Security and Data Privacy</a>
	Ribbon Indicator		ISO 27001 certification NIST compliance	page44
<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 11-16
<b>Sustainable products</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	page 35
	GRI 302: Energy 2016	302-5	Reductions in energy requirements of products and services	page 32
<b>Diversity, equity and inclusion</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	<a href="#">Our Approach to Diversity, Equity and Inclusion in our Workforce</a>
	GRI 405: Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	page 60
<b>Employee engagement</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	<a href="#">Our Approach to Employment</a>
	GRI 401: Employment 2016	401-1	New employee hires and turnover	page 58
<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 59
		403-2	Hazard identification, risk assessment, and incident investigation	page 59
		403-3	Occupational health services	page 59
		403-4	Worker participation, consultation, and communication on occupational health and safety	page 59
		403-5	Worker training on occupational health and safety	page 59
		403-6	Promotion of worker health	pages 26,59
		403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	page 59
		403-8	Our Approach to Health, Safety and Wellbeing	page 59
		403-9	Work-related injuries	page 59
403-10		Work-related ill health	page 59	

# GRI CONTENT INDEX: MATERIAL DISCLOSURES

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	<a href="#">Our Approach to Information Security and Data Privacy</a>	
	GRI 418: Data privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	No substantiated complaints	
<b>Employee training and development</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	<a href="#">Our Approach to Employment</a>	
	GRI 404: Training and Education	404-1	Average hours of training per employee	page 60	
		404-2	Programs for upgrading employee skills and transition assistance programs	page 21	
		404-3	Employees receiving performance reviews	page 60	
<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 12	
<b>Advanced technologies &amp; innovations</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	page 56	
	GRI 203: Indirect economic impacts 2016	203-2	Significant indirect economic impacts	pages 11-16	
<b>Responsible supply chain management</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	<a href="#">Our Approach to Responsible Supply Chain Management</a>	
	GRI 414: Supplier Social Assessment 2016	414-1	New suppliers that were screened using social criteria	page 43	
<b>Business continuity &amp; recovery</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	page 39	
	Ribbon Indicator		ISO certification 22301:2019	page 44	
<b>Water*</b>	GRI 303: Water 2018	303-1	Interactions with water as a shared resource	page 56	
		303-2	Management of water discharge-related impacts	page 56	
		303-3	Water withdrawal	page 56	
<b>Waste*</b>	GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	page 56	
		306-2	Management of significant waste-related impacts	page 56	
		306-3	Waste generated	page 57	
		306-4	Waste diverted from disposal	page 57	
		306-5	Waste directed to disposal	page 57	
<b>Community*</b>	GRI 413: Local Communities 2016	413-1	Operations with local community engagement	page 27	

\* Not identified as material for Ribbon.

# Data Tables and Disclosures

## 2-7 Employees

Employees by region, gender and contract	2021			2022			2023		
	Women	Men	All	Women	Women	All	Women	Men	All
North America	196	807	1,003	184	759	943	167	696	863
EMEA	245	813	1,058	245	811	1,056	219	755	974
ASIA	360	1,156	1,516	319	957	1,276	288	893	1,181
LATAM	21	100	121	24	95	119	21	79	100
<b>All employees</b>	<b>822</b>	<b>2,876</b>	<b>3,698</b>	<b>772</b>	<b>2,622</b>	<b>3,394</b>	<b>695</b>	<b>2,423</b>	<b>3,118</b>
<b>Percentage full time contracts</b>	<b>94%</b>	<b>99%</b>	<b>98%</b>	<b>95%</b>	<b>98%</b>	<b>97%</b>	<b>96%</b>	<b>99%</b>	<b>98%</b>
<b>Percentage permanent contracts</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>100%</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 2023, 1,710 workers who are not employees were engaged in work for Ribbon across more than 30 small and large office locations. These individuals performed work in the areas of software development, security, cleaning, catering and other activities.

## 2-28: Membership 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	2021	2022	2023
North America	1	1	1
EMEA	652	660	659
ASIA	0	0	0
LATAM	13	13	0
<b>All employees</b>	<b>666</b>	<b>674</b>	<b>660</b>
<b>Percentage of total employees</b>	<b>18%</b>	<b>20%</b>	<b>21%</b>

## Note to energy and emissions data compilation

- In 2023, we established a revised threshold for inclusion of sites for data reporting to more accurately reflect our current operations and ensure inclusion of all relevant sites since 2018 and in each subsequent year. The new threshold, which covers more than 95% of our operational environmental impact, includes sites that:
  - Support a laboratory facility, or
  - Support a warehousing facility, or
  - Employ more than 15 people.
- In revising our reporting in line with this threshold, we examined data for all sites going back to 2018, taking into account site closures, relocations and energy consumption, using actual energy invoices stored in our systems for all years. We also reviewed GHG emissions factors over the years, using market-based factors where relevant. This intensive review resulted in more comprehensive and accurate energy and emissions data for the years 2018 through 2022, all of which are reflected and restated in this report, alongside data for 2023, which was also independently externally verified for the first time.
- Energy and emissions data cover all Ribbons sites operational in 2023 meeting the threshold described above.
- 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 CO2, N2O and CH4 factors supplied by IEA.
- Market based emissions are applied in locations where we have certified renewable energy sources and where local energy suppliers have provided conversion factors.
- 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-over-year, a comparison with prior year performance.

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

Energy Type	Units	2018	2019	2020	2021	2022	2023	YOY
Natural gas	GJ	21,429	25,912	21,968	25,573	26,422	25,607	-3%
Diesel	GJ	288	413	346	483	605	240	-60%
Gasoline	GJ	800	715	523	208	306	715	95%
LPG/Propane	GJ	236	250	101	58	43	17	-61%
<b>Total Scope 1 energy: gases and fuels</b>	<b>GJ</b>	<b>22,752</b>	<b>27,290</b>	<b>22,937</b>	<b>26,322</b>	<b>27,436</b>	<b>26,579</b>	<b>-3%</b>
Purchased electricity	GJ	220,666	212,587	204,942	197,010	165,251	162,280	-2%
Renewable electricity purchased	GJ	2,574	3,046	3,123	3,068	20,244	17,338	-14%
<b>Total Scope 2 energy: electricity</b>	<b>GJ</b>	<b>223,240</b>	<b>215,633</b>	<b>208,064</b>	<b>200,077</b>	<b>185,495</b>	<b>179,618</b>	<b>-3%</b>
<b>Total energy consumption</b>	<b>GJ</b>	<b>245,992</b>	<b>242,922</b>	<b>231,002</b>	<b>226,399</b>	<b>212,931</b>	<b>206,197</b>	<b>-3%</b>
<b>Total energy reduction since 2018</b>	<b>%</b>	<b>0</b>	<b>-1%</b>	<b>-6%</b>	<b>-8%</b>	<b>-13%</b>	<b>-16%</b>	

**Note:** See "Note to energy and emissions data compilation" for details of restated data.

**302-3: Energy intensity**

Intensity by type	Units	2018	2019	2020	2021	2022	2023	YOY
Scope 1 Fuels and gases	GJ/employee	6.02	7.33	6.99	7.19	8.19	9.95	22%
Scope 2 Electricity	GJ/employee	59.07	57.92	63.40	54.64	55.35	67.25	21%
<b>Total energy intensity/employee</b>	<b>GJ/employee</b>	<b>65.09</b>	<b>65.25</b>	<b>70.38</b>	<b>61.82</b>	<b>63.54</b>	<b>77.20</b>	<b>21%</b>
Scope 1 Fuels and Gases	GJ/m <sup>2</sup>	0.178	0.224	0.177	0.216	0.247	0.272	10%
Scope 2 Electricity	GJ/m <sup>2</sup>	1.75	1.77	1.61	1.64	1.67	1.84	10%
<b>Total energy intensity/m<sup>2</sup></b>	<b>GJ/m<sup>2</sup></b>	<b>2.09</b>	<b>2.18</b>	<b>1.92</b>	<b>1.96</b>	<b>2.00</b>	<b>2.21</b>	<b>10%</b>
Scope 1 Fuels and Gases	GJ/\$M	39.369	48.462	27.184	31.151	33.459	32.178	-4%
Scope 2 Electricity	GJ/\$M	386.29	382.93	246.58	236.79	226.21	217.45	-4%
<b>Total energy intensity/\$Million</b>	<b>GJ/\$M</b>	<b>425.66</b>	<b>431.39</b>	<b>273.77</b>	<b>267.94</b>	<b>259.67</b>	<b>249.63</b>	<b>-4%</b>

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

Gases and fuels	Units	2018	2019	2020	2021	2022	2023	YOY
Natural gas	MT CO <sub>2</sub> e	1,095	1,323	1,122	1,301	1,340	1,298	-3%
Diesel (generators)	MT CO <sub>2</sub> e	20	28	23	32	40	16	-60%
Diesel (company-owned cars)	MT CO <sub>2</sub> e	2.59	3.16	9.31	24.27	24.68	23.05	-7%
Gasoline (company-owned cars)	MT CO <sub>2</sub> e	51.9	46.4	33.3	13.3	23.1	45.1	95%
LPG/Propane	MT CO <sub>2</sub> e	14.04	14.90	6.02	3.44	2.58	1.00	-61%
<b>Total gases and fuels</b>	<b>MT CO<sub>2</sub>e</b>	<b>1,183</b>	<b>1,416</b>	<b>1,194</b>	<b>1,374</b>	<b>1,431</b>	<b>1,384</b>	<b>-3%</b>
Refrigerants	MT CO <sub>2</sub> e	N/A	41	98	1,004	735	741	1%
<b>Total Scope 1 GHG emissions</b>	<b>MT CO<sub>2</sub>e</b>	<b>1,183</b>	<b>1,457</b>	<b>1,292</b>	<b>2,378</b>	<b>2,166</b>	<b>2,124</b>	<b>-2%</b>

**Note:** See "Note to energy and emissions data compilation" for details of restated data.

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

Electricity	Units	2018	2019	2020	2021	2022	2023	YOY
Purchased electricity location-based	MT CO <sub>2</sub> e	23,006	21,035	19,506	19,020	18,106	16,748	-7%
Purchased electricity market-based	MT CO <sub>2</sub> e	24,127	22,231	20,337	19,467	15,628	14,842	-5%
Purchased cooling	MT CO <sub>2</sub> e	523	497	458	444	411	391	-5%
<b>Total Scope 2 GHG emissions location-based</b>	<b>MT CO<sub>2</sub>e</b>	<b>23,529</b>	<b>21,532</b>	<b>19,964</b>	<b>19,463</b>	<b>18,517</b>	<b>17,139</b>	<b>-7%</b>
<b>Total Scope 2 GHG emissions market-based</b>	<b>MT CO<sub>2</sub>e</b>	<b>24,651</b>	<b>22,728</b>	<b>20,795</b>	<b>19,910</b>	<b>16,039</b>	<b>15,196</b>	<b>-5%</b>

**Note:** See "Note to energy and emissions data compilation" for details of restated data.

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

Scope 3 - Emissions	Units	2018	2019	2020	2021	2022	2023	YOY
Category 1: Purchased goods and services	MT CO <sub>2</sub> e	326	269	841	1,136	1,652	1,344	-19%
Category 3A: Upstream emissions of purchased fuels	MT CO <sub>2</sub> e	172	194	164	240	251	243	-3%
Category 3B: Upstream emissions of purchased electricity	MT CO <sub>2</sub> e	5,052	4,514	4,027	6,187	4,986	4,742	-5%
Category 3C: Transmission and distribution losses	MT CO <sub>2</sub> e	2,287	2,173	1,977	1,919	1,612	1,582	-2%
Category 5: Waste generated in operations	MT CO <sub>2</sub> e	86	75	45	51	41	39	-4%
Category 6: Business travel	MT CO <sub>2</sub> e		4,638	1,396	1,026	1,705	1,600	-6%
Category 7: Employee commuting	MT CO <sub>2</sub> e				1,363	947	1,331	40%
Category 9: Downstream transportation and distribution	MT CO <sub>2</sub> e			69	156	231	212	-8%
<b>Total Scope 3 GHG emissions</b>	<b>MT CO<sub>2</sub>e</b>	<b>7,922</b>	<b>11,862</b>	<b>8,518</b>	<b>12,078</b>	<b>11,424</b>	<b>11,093</b>	<b>-3%</b>

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

## GHG emissions summary

Emissions type	Units	2018	2019	2020	2021	2022	2023	YOY
Scope 1 GHG emissions	MT CO <sub>2</sub> e	1,183	1,457	1,292	2,378	2,166	2,124	-2%
Scope 2 GHG emissions market-based	MT CO <sub>2</sub> e	24,651	22,728	20,795	19,910	16,039	15,196	-5%
Scope 3 GHG emissions	MT CO <sub>2</sub> e	7,922	11,862	8,518	12,078	11,424	11,093	-3%
Scope 1+2 GHG emissions market-based	MT CO <sub>2</sub> e	25,834	24,184	22,087	22,288	18,204	17,320	-5%
Scope 1+2+3 GHG emissions	MT CO <sub>2</sub> e	29,193	26,896	26,025	34,366	29,629	28,413	-4%
<b>Scope 1+2 GHG emissions reduction since 2018</b>	<b>%</b>	<b>0</b>	<b>-6%</b>	<b>-15%</b>	<b>-14%</b>	<b>-30%</b>	<b>-33%</b>	

## 305-4: GHG emissions intensity

Intensity by type	Units	2018	2019	2020	2021	2022	2023	YOY
Scope 1+2 by employee	MT CO <sub>2</sub> e/employee	6.84	6.50	6.73	6.09	5.43	6.48	19%
Scope 1+2 by square meters	MT CO <sub>2</sub> e/ m <sup>2</sup>	0.202	0.199	0.171	0.183	0.164	0.177	8%
Scope 1+2 by revenue	MT CO <sub>2</sub> e/ \$M	44.70	42.95	26.18	26.38	22.20	20.97	-6%
Scope 1+2+3 GHG by employee	MT CO <sub>2</sub> e/employee	7.73	7.22	7.93	9.38	8.84	10.64	20%
Scope 1+2 by square meters	MT CO <sub>2</sub> e/m <sup>2</sup>	0.229	0.221	0.201	0.282	0.267	0.291	9%
Scope 1+2 by revenue	MT CO <sub>2</sub> e/ \$M	50.52	47.76	30.84	40.67	36.13	34.40	-5%

## 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	2023	YOY
<b>Total water withdrawal - municipal water only</b>	Megaliters	13.04	26.24	22.08	21.14	45.60	40.38	<b>-11%</b>
<b>Water intensity</b>	m <sup>3</sup> /employee	3.45	7.05	6.73	5.77	13.61	15.12	<b>11%</b>
<b>Water intensity</b>	m <sup>3</sup> /m <sup>2</sup>	0.10	0.22	0.17	0.17	0.41	0.41	<b>1%</b>
<b>Water intensity</b>	m <sup>3</sup> /\$M	22.56	46.59	26.17	25.01	55.61	48.89	<b>-12%</b>
<b>Water withdrawal from a water stress area</b>	Megaliters	-	-	-	-	16.55	11.78	<b>-29%</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	2023	YOY
Board, paper	MT	0	0	0	33	22	19	-15%
Mixed/Unspecified	MT	167	144	118	292	108	101	-7%
Metals	MT	0	0	0	21	0	17	3,552%
Organic waste	MT	0	0	6	4	3	21	588%
Electronic Waste (WEEE)	MT	0	0	0	160	50	56	13%
<b>Total waste – all types</b>	<b>MT</b>	<b>167</b>	<b>144</b>	<b>124</b>	<b>510</b>	<b>184</b>	<b>214</b>	<b>16%</b>
<b>Non-hazardous diverted waste from disposal</b>								
Recycling (including energy recovery)	MT	8	3	9	40	30	24	-19%
Other recovery operations	MT	0	0	2	-	-	21	-
<b>Non-hazardous waste directed to disposal</b>								
Incineration (with energy recovery)	MT	13	13	8	4	8	8	=
Landfill	MT	146	127	101	95	91	88	-4%
<b>Total non-hazardous waste diverted</b>	<b>MT</b>	<b>8</b>	<b>4</b>	<b>11</b>	<b>41</b>	<b>30</b>	<b>45</b>	<b>50%</b>
<b>Total non-hazardous waste disposed</b>	<b>MT</b>	<b>159</b>	<b>140</b>	<b>109</b>	<b>99</b>	<b>100</b>	<b>95</b>	<b>-5%</b>
<b>Total non-hazardous waste</b>	<b>MT</b>	<b>167</b>	<b>144</b>	<b>121</b>	<b>140</b>	<b>130</b>	<b>141</b>	<b>8%</b>
Hazardous waste diverted from disposal: recycling	MT	-	-	-	370	53	73	37%
Hazardous waste directed to disposal: landfill	MT	-	-	-	0	0	0	=
<b>Total hazardous waste diverted</b>	<b>MT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>370</b>	<b>53</b>	<b>73</b>	<b>37%</b>
<b>Total hazardous waste disposed</b>	<b>MT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>=</b>
<b>Total hazardous waste</b>	<b>MT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>370</b>	<b>54</b>	<b>73</b>	<b>36%</b>
<b>Total non-hazardous waste</b>	<b>MT</b>	<b>167</b>	<b>144</b>	<b>121</b>	<b>140</b>	<b>130</b>	<b>141</b>	<b>8%</b>
<b>Total hazardous waste</b>	<b>MT</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>370</b>	<b>54</b>	<b>73</b>	<b>36%</b>
<b>Total waste</b>	<b>MT</b>	<b>167</b>	<b>144</b>	<b>121</b>	<b>510</b>	<b>184</b>	<b>214</b>	<b>16%</b>
<b>Total waste diverted</b>	<b>MT</b>	<b>8</b>	<b>4</b>	<b>11</b>	<b>411</b>	<b>84</b>	<b>119</b>	<b>42%</b>
<b>Total waste disposed</b>	<b>MT</b>	<b>159</b>	<b>140</b>	<b>109</b>	<b>99</b>	<b>101</b>	<b>95</b>	<b>-5%</b>
<b>Total waste diverted</b>	<b>%</b>	<b>100%</b>	<b>25%</b>	<b>68%</b>	<b>81%</b>	<b>45%</b>	<b>55%</b>	<b>22%</b>
<b>Total waste disposed</b>	<b>%</b>	<b>0%</b>	<b>75%</b>	<b>32%</b>	<b>19%</b>	<b>55%</b>	<b>45%</b>	<b>-18%</b>
Waste intensity by revenue	MT /\$M	0.29	0.26	0.14	0.60	0.22	0.26	15%
Total waste to landfill	MT	146	127	101	95	91	88	-4%
Total waste to landfill %	%	88%	88%	84%	19%	49%	41%	-17%

## 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>2023: New hires</b>	North America	14	5	13	8	6	4	32	18	50
	EMEA	14	24	3	3	4	2	41	9	50
	ASIA	36	20	2	18	3	0	58	21	79
	LATAM	2	6	1	0	0	0	9	0	9
	<b>Total</b>	<b>66</b>	<b>55</b>	<b>19</b>	<b>29</b>	<b>13</b>	<b>6</b>	<b>138</b>	<b>48</b>	<b>188</b>
<b>2023: New hire rates</b>	North America	0.45%	0.16%	0.42%	0.26%	0.19%	0.13%	1.03%	0.58%	1.60%
	EMEA	0.45%	0.77%	0.10%	0.10%	0.13%	0.06%	1.31%	0.29%	1.60%
	ASIA	1.15%	0.64%	0.06%	0.58%	0.10%	0.00%	1.80%	0.67%	2.47%
	LATAM	0.06%	0.19%	0.03%	0.00%	0.00%	0.00%	0.29%	0.00%	0.29%
	<b>Total</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>	<b>0%</b>	<b>4%</b>	<b>2%</b>	<b>6%</b>
<b>2023: Leavers</b>	North America	17	17	67	9	8	18	101	35	136
	EMEA	22	39	32	9	20	6	93	35	128
	ASIA	48	60	10	39	12	1	118	51	170
	LATAM	1	13	11	0	2	1	25	3	28
	<b>Total</b>	<b>88</b>	<b>129</b>	<b>120</b>	<b>48</b>	<b>42</b>	<b>26</b>	<b>337</b>	<b>124</b>	<b>462</b>
<b>2023: Turnover rates</b>	North America	0.55%	0.55%	2.15%	0.29%	0.26%	0.58%	3.24%	1.12%	4.36%
	EMEA	0.71%	1.25%	1.03%	0.29%	0.64%	0.19%	2.98%	1.12%	4.11%
	ASIA	1.54%	1.92%	0.32%	1.25%	0.38%	0.03%	3.78%	1.64%	5.45%
	LATAM	0.03%	0.42%	0.35%	0.00%	0.06%	0.03%	0.80%	0.10%	0.90%
	<b>Total turnover</b>	<b>3%</b>	<b>4%</b>	<b>4%</b>	<b>2%</b>	<b>1%</b>	<b>1%</b>	<b>11%</b>	<b>4%</b>	<b>15%</b>

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

### 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	2023
Employees and contractors	0.243	0.177	0.158	0.106	0.073

Work-related injuries		Direct employees			Other workers			Total workforce		
		2021	2022	2023	2021	2022	2023	2021	2022	2023
Hours worked	Million hours	6.30	5.11	4.38	1.29	0.56	1.09	7.58	5.67	5.47
Fatalities	Number	0	0	0	0	0	0	0	0	0
Work-related injuries	Number	6	2	2	0	1	0	6	3	2
Recordable work-related injuries	Number	0	1	1	0	1	0	0	2	1
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	0.191	0.078	0.091	0	0.358	0	0.158	0.106	0.073
Recordable work-related injuries	Rate	0	0.039	0.046	0	0.358	0	0	0.071	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 2023.

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

Training hours	2020	2021	2022	2023
Managers	8,080	8,781	8,221	7,530
Non-managers	37,298	41,264	33,973	33,715
All employees	45,378	50,045	42,194	41,246
<b>Average training hours per employee per year</b>	<b>12.00</b>	<b>13.53</b>	<b>12.43</b>	<b>13.23</b>

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

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

Details of performance reviews	2021		2022		2023	
	Men	Women	Men	Women	Men	Women
Managers	100%	99%	100%	100%	100%	100%
Non-managers	97%	97%	97%	97%	98%	98%
<b>Total by gender</b>	<b>97%</b>	<b>97%</b>	<b>98%</b>	<b>98%</b>	<b>99%</b>	<b>98%</b>
<b>Total</b>	<b>97%</b>		<b>98%</b>		<b>99%</b>	

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

Employees by age group	2021			2022			2023		
	< 30	30 - 50	> 50	< 30	30 - 50	> 50	< 30	30 - 50	> 50
Number of managers	3	372	301	3	335	308	4	303	302
Number of non-managers	771	1,403	848	669	1,237	842	548	1,157	804
<b>Total employees</b>	<b>774</b>	<b>1,775</b>	<b>1,149</b>	<b>672</b>	<b>1,572</b>	<b>1,150</b>	<b>552</b>	<b>1,460</b>	<b>1,106</b>
% of managers	0%	55%	45%	0%	52%	48%	1%	50%	50%
% of non-managers	26%	46%	28%	24%	45%	31%	22%	46%	32%
<b>% of total employees</b>	<b>21%</b>	<b>48%</b>	<b>31%</b>	<b>20%</b>	<b>46%</b>	<b>34%</b>	<b>18%</b>	<b>47%</b>	<b>35%</b>

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

# SASB DISCLOSURE

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 62
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. <b>8%</b> racial/ethnic representation at management level*
		Percentage of gender and racial / ethnic group representation for technical staff	<b>5%</b> racial / ethnic group representation for technical staff (as a percentage of total workforce).
		Percentage of gender and racial/ethnic group representation for all other employees	<b>24%</b> of all non-management employees at Ribbon are women. Racial/ethnic group representation among non-management non-technical employees at Ribbon is not available.
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 2023.
		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 2023.
	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 2023 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-identify. Our data represent employees in the U.S. who have voluntarily self-identified.

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 organizations 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 lessen 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 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 2023, our disclosure covers 99% of our Scope 3 contract manufacturing and other Scope 3 categories.

### 4b. Emissions performance

Emissions type	Units	2018	2019	2020	2021	2022	2023	YOY
Scope 1 GHG emissions	MT CO <sub>2</sub> e	1,183	1,457	1,292	2,378	2,166	2,124	-2%
Scope 2 GHG emissions market-based	MT CO <sub>2</sub> e	24,651	22,728	20,795	19,910	16,039	15,196	-5%
Scope 3 GHG emissions	MT CO <sub>2</sub> e	7,922	11,862	8,518	12,078	11,424	11,093	-3%
Scope 1+2 GHG emissions market-based	MT CO <sub>2</sub> e	25,834	24,184	22,087	22,288	18,204	17,320	-5%
Scope 1+2+3 GHG emissions	MT CO <sub>2</sub> e	29,193	26,896	26,025	34,366	29,629	28,413	-4%
<b>Scope 1+2 GHG emissions reduction since 2018</b>	<b>%</b>	<b>0</b>	<b>-6%</b>	<b>-15%</b>	<b>-14%</b>	<b>-30%</b>	<b>-33%</b>	

For full details and for the basis of our reporting, please see "Note to energy and emissions data compilation."

### 4c. Targets

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







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