Sustainability Leaders, 2024

A review of sustainability initiatives by major print vendors

Executive summary

Print manufacturers and their partners face a complex landscape of rising energy costs, stricter regulations, and growing demands for sustainability from stakeholders and customers. Notable regulations that can impact a global basis include the EU Ecodesign for Sustainable Products Regulation (ESPR), the Right to Repair, and the EU Corporate Sustainability Reporting Directive (CSRD) being phased in for the FY24 reporting period. To address the climate crisis and reduce greenhouse gas emissions (GHGs), the industry must prioritise carbon reduction and commit to ambitious sustainability targets. Print manufacturers are committing to reducing not only their own GHGs but also the emissions resulting from their own supply chains and customers.

While many OEMs aim to achieve net-zero emissions by 2050, several vendors are setting more ambitious targets. HP and Xerox have committed to net-zero emissions by 2040. Lexmark has a 2035 net neutrality target, and Epson targets carbon-negative status by 2050. These targets often reflect the company's overall global operations, not solely the manufacturing of printing products. This acceleration towards earlier target dates is driven by factors such as increased experience in collecting and utilising emissions data. Quocirca expects that these early target dates and terminology differentiators will increasingly be used as competitive differentiators.

There is a clear trend towards increased adoption of renewable energy sources within the industry. Epson is a notable example, having achieved almost 100% renewable electricity usage across all its global sites by 2023. This significant step demonstrates the company's commitment to sustainability and its ability to implement large-scale renewable energy solutions. HP follows in second place, achieving 59% renewable electricity usage in its global operations, a significant step towards its goal of 100% renewable electricity by 2025.

Accelerating the transition to a sustainable print industry necessitates a shift away from the linear 'take-make-dispose' model and towards circular economy principles, leveraging and extending the leasing, reusing, repairing, refurbishing, and recycling services seen within mature managed print services (MPS) models.

Over the past year, print vendors have continued to enhance the environmental credentials of their product portfolio. This includes increasing the use of post-consumer recycled (PCR) materials in devices, improving energy efficiency, and implementing comprehensive recycling programmes for consumables and hardware. A sustainable-by-design approach and lifecycle assessments (LCAs) have become standard practices across the industry. New refurbishment programmes were launched in 2024, such as HP Renew Solutions, offering certified refurbished PCs and printers, further extending the life of devices and reducing electronic waste. Remanufactured product lines from Canon, Lexmark, Ricoh, and Xerox are also available.

The print industry, while making strides in product sustainability, must prioritise providing accurate and reliable environmental impact data to customers. Currently, fragmented approaches and a lack of data standardisation hinder customers' ability to assess the true environmental footprint of their print infrastructure, encompassing hardware (manufacture, delivery, and usage), paper, and consumables. Despite 83% of IT decision-makers in Quocirca's 2024 Sustainability study recognising the importance of environmental data, they are struggling to get what they need from vendors. Print vendors must bridge this gap to empower informed decision-making and drive sustainable practices.

Sustainability assessments have become essential tools for evaluating and improving the environmental impact of printing practices, but the quality and scope can vary significantly between different MPS providers. While some providers focus solely on traditional print environments, others take a broader approach, evaluating opportunities for digitisation and business process optimisation to further reduce environmental impact. A leading offering, launched in September 2024, is the Xerox Verified Carbon Neutrality Service, an MPS offering developed to the ISO 14068 carbon neutrality standard and independently verified. Another notable launch in 2024 was Ricoh's new Sustainability Services Dashboard, developed in partnership with Watershed, which reports on emissions data associated with Ricoh Digital Services.

This report provides an overview of the print vendor sustainability landscape in 2024, exploring how vendors are accelerating sustainability goals across business operations, how sustainability is embedded across products and services through circular programmes, and how the channel is being supported. The report includes detailed profiles for participating vendors: Brother, Canon, Epson, HP, Konica Minolta, Ricoh, Sharp, Toshiba, and Xerox. Print vendors' sustainability targets are summarised in the Appendix.

Contents

Key findings

- **Quocirca's Sustainability Leaders for 2024 are characterised by strong vision and execution across their sustainability strategies and product offerings.** In 2024, all vendors have made progress on their sustainability vision, commitments, and deliverables, raising overall standards across the print industry. The leadership group comprises HP, Xerox, Canon, Epson, Ricoh, and Lexmark, and the major players are Brother, Konica Minolta, Sharp, and Toshiba.

- **Print vendors are accelerating their net-zero timelines and strengthening commitments**. The year 2050 has been the broadly adopted goal to achieve net-zero emissions, but suppliers are bringing target years forward, positioning early net-zero commitments as a competitive differentiator. HP and Xerox, the first to set 2040 as the net-zero target year, have maintained their targets. Lexmark is working towards net neutrality by 2035, while Epson aims to be carbon-negative and underground resource-free by 2050.

- **Vendors are setting earlier interim emission reduction ambitions.** Sharp and Toshiba have set ambitious targets of net zero Scope 1 and 2 emissions by 2030. Ricoh has expanded and accelerated its GHG reduction goals by 10 years, including net-zero Scope 1 and 2 emissions and a 65% Scope 3 reduction by 2040, while Konica Minolta has accelerated its CO_2 emissions reduction target from 60% to 70% by 2030. Epson's targets include a 34% reduction in Scopes 1 and 2 emissions and a 44% reduction in Scope 3 (categories 1 and 11) by 2025. By working with Climate Impact Partners and using the CarbonNeutral Protocol as a guide, Lexmark is progressing towards its 2035 carbon neutrality target. Revised targets and shorter time frames reflect vendors' growing confidence in emissions visibility and their ability to monitor and report performance.

- **Renewable energy targets differ significantly.** All print vendors are increasing their use of renewable electricity, but the proportion and adoption rates vary from under 10% to nearly 100%. Epson leads, having announced in December 2023 that it had transitioned to 100% renewable electricity across Epson sites worldwide. HP has pledged to power 100% of its global operations with renewable energy by 2035, from 59% in 2023. From zero renewables use in 2019, Lexmark has set a target of 80% by 2025 and 100% by 2030. It made significant progress during 2023, rising from sub-10% to 54%. Ricoh has brought forward plans for 100% renewable electricity consumption to 2040, from 33.6% globally in 2024. Epson, HP, Konica Minolta, and Ricoh are members of RE100, the global initiative to accelerate the transition to 100% renewable electricity. Members commit to sourcing 100% renewable electricity for their operations by 2050 at the latest.

- **Sustainability is sparking innovation across commoditised hardware.** Sustainable-by-design approaches that drive innovations to improve energy efficiency and reduce environmental impact are seen in Canon's imageFORCE MFP and Lexmark's 9-Series range. Low-temperature fixing toner and fusing technologies that reduce energy consumption are prime areas for innovation. Canon says its low-temperature fixing toner can reduce power consumption by up to 15%, while Konica Minolta's Simitri V toner reduces the fixing temperature by 15°C, and Sharp's Mycrostoner and low-temperature fusing technology drive down energy consumption. HP's TerraJet toner cartridges are designed for efficient toner use and consume less energy than its predecessor, and Epson's Heat-Free inkjet technology is an innovative example of lower power consumption and reduced waste. Epson continues to develop its dry-fibre paper technology (DFT), which recycles and repurposes fibrous materials into new products, including paper, without using water. It is also deployed within its PaperLab A-8000 paper recycler.

- **The use of recycled materials varies considerably.** Recycled plastic and other recycled components and materials are central to circular economy practices and net-zero achievement. Toner and ink cartridges have high proportions of recycled material. However, rates within printers and MFPs are lower but rising. HP's DeskJet 2855e All-in-One Printer incorporates 60% recycled plastic. Lexmark's 9-Series range achieves 56% PCR plastic, and over 90% of the materials used in its hardware products are recyclable, illustrating the importance of designing for repeated recovery and reuse. Ricoh's IM C2510 MFP boasts 51.9% PCR, and Konica Minolta's current MFPs comprise up to 54% recycled plastics. Canon is also increasing the use of recycled materials. Its latest imageFORCE C7165 MFP has been built using 30% recycled plastics.

- **Cartridge-recycling programmes are being extended and improved to ease access and encourage take-up.** In 2024, Brother launched a new inkjet cartridge remanufacturing line at its Recycling Technology Centre in Wrexham, North Wales, and it expects to remanufacture over 2 million inkjet cartridges a year once fully operational. It has also reported that it is the first OEM globally to be awarded the revised Blue Angel DE-UZ

177 certification for its toner cartridges. To ease accessibility, Epson has expanded collection options as part of its cartridge-recycling improvement initiative, scheduled for completion by the end of 2024. Lexmark recently added a carbon indicator feature to the online hub for its cartridge and printer recycling and remanufacturing offerings. It provides personalised estimates of the carbon impact and contribution to the circular economy of returned devices. Konica Minolta's Clean Planet Program assures environmentally sound disposal of toner bottles and cartridges, drums, and other used consumables. Collected toner bottles are sent to recycling companies such as Close the Loop so secondary raw materials can be collected, and 87% of the waste is turned into secondary raw materials.

- **Remanufacturing is an increasingly important feature of circular strategies.** Remanufactured devices are rebuilt from reused, repaired, or new parts, comparable to refurbished devices that are returned, retested, and redistributed. Canon added two models to the imageRUNNER ADVANCE ES Range of remanufactured devices in 2024. Its aim to increase the ratio of remanufactured products to total multifunction devices to 5% in 2025 highlights the potential for expansion. Ricoh GreenLine MFPs were the first to receive ENERGY STAR certification. Lexmark Evergreen products use up to 90% reused or repaired parts. Xerox Certified devices meet the standards of newly manufactured Xerox products and reuse up to 95% of machine components by weight.

- **Vendors are enhancing sustainability assessment services and green reporting.** Sustainability assessments have emerged as important tools for evaluating and improving the environmental impact of printing practices and present channel partners with opportunities for additional revenue generation. They provide the data to inform sustainability strategy and action plans (including Scope 3), and sustainability assessment data can be used to support CSRD compliance. Notable offerings include HP's Carbon Neutral Managed Print Services, which help customers reduce their carbon footprint through assessments and offsetting, and the Verified Carbon Neutrality Service from Xerox, which is available to MPS customers and provides carbon footprint assessments, reduction plans, and access to carbon credits. Ricoh's Carbon Balanced Service enables customers to offset unavoidable emissions from pre-use and in-use device and document management phases, including Scope 3. The Sustainability Services Dashboard enables customers to measure, report, and act upon emissions data associated with Ricoh Digital Services, focusing on Scope 3 emissions and data-driven insights from integration with the Watershed enterprise sustainably platform.

- **Sustainability-focused channel programmes are few and far between.** HP has led the charge with Amplify Impact, which aims to maximise sustainable business opportunities for partners. Its extensive partner ecosystem extends across 48 countries, and the programme will be further opened up to distribution partners. Xerox made its 'How Xerox can help customers achieve their sustainability goals' e-learning module mandatory for the Velocity channel in 2024. It is also developing optional learning modules on the circular economy, greenhouse gas emissions, and digital services for 2025. Lexmark is developing channel training and partner sustainability recognition programmes for 2025.

Quocirca's Sustainability Leaders report complements its main [Sustainability Trends, 2024 report](#), which analyses how decision-makers view and prioritise sustainability around the print infrastructure.

Vendor profile: Sharp

Quocirca opinion

Sharp is a major player in Quocirca's assessment of the Sustainability Vendor Landscape in 2024. In the past year, Sharp has revised its targets established in its Eco Vision 2050 strategy, and in October 2024, announced that it was bringing forward its net-zero goal for Scope 1 and 2 emissions to 2030. This ambitious target marks significant progress for the company, which continues to focus on its long-term environmental goals as set out in its Eco Vision 2050. Sharp Europe, in particular, has now made sustainability a key pillar of its overall strategy and shown significant progress in deepening its expertise and service offerings around sustainability.

Climate change achievements

Sharp's greenhouse gas emissions from its business activities in fiscal 2023 were 1,175 thousand t-CO_2, a decrease of 13.9% compared to the base year, representing a 6.9% year-on-year improvement. Sharp also complies with the Science Based Targets initiative. Having been previously certified for SABT WB2℃ (well-below 2℃) in March 2024, it was certified for SBT 1.5℃, representing a significant year-on-year improvement.

Sharp reports that it is decreasing its volume of new water use, which reduced by 9% compared to the previous fiscal year to 9.2 million m3. All water discharged through the production process is collected and reused through a closed-loop recycling system, helping Sharp maintain a recycling rate of at least 60%.

Expanding renewable energy

Sharp has been steadily reducing CO_2 emissions by switching to renewable power. In fiscal 2023, the full-scale operation of power purchase agreements (PPAs) introduced at factories in Thailand and China led to a significant increase in the amount of green electricity purchased to 14.58 million kWh, and the amount of self-generated electricity by solar power generation systems was 4.49 million kWh.

Sharp's factories in China have been using renewable energy and power generation since January 2023, resulting in a 367 tonnes CO_2 reduction in the first three months. These facilities are expected to reduce greenhouse gas emissions by roughly 1,830 tonnes of CO_2 per year.

Addressing circularity across the product lifecycle

Circularity is designed into products via initiatives such as Sharp's Green Products programme. Sharp is actively extending the life of products with low power consumption, low resource use, active use of recycled plastic, improved waste management, and a reduced CO_2 footprint from its MFPs through remote engineer maintenance and support.

Sharp's latest MFPs have a 17% reduction in plastics used in packaging, while packaging for specific A4 models will have zero plastic. Sharp is working to increase the usage rate of recycled plastic materials (PCR materials) to approximately 50%. Toner cartridges are remanufactured in Japan, and parts are recycled. Sharp also plans to use 3D printing for maintenance parts through Sharp Manufacturing France. In addition, its MFP photoconductor and developer units are now designed to last the lifetime of the device.

Sharp reports that 12 million toner cartridges for A3 devices have been remanufactured in Japan over the last 20 years, since 2003. Sharp expects 375,000 units to have additionally been remanufactured between April and September 2024.

Refurbishment is offered through Sharp's New Life Printers programme. The New Life Programme is currently available in the UK, France, Germany, Switzerland, Austria, Sweden, and Benelux markets. New Life printers are devices that are returned to Sharp from existing customers when they decide to upgrade. Devices undergo full testing, with refurbishments carried out by Sharp's qualified technicians.

Improvements in device energy efficiency

Continual improvements in energy efficiency have brought the TEC value of the latest generation of A3 MFPs down, so it is approximately 8–25% lower than the previous generation. The target for the next generation is a further 13% reduction. Low-melting-point Mycrostoner and low-temperature fusing technology continue to drive

QUOCIRCA

down device energy consumption. Sharp's latest A4 MFP devices, released in 2024, utilise a low-temperature fixing toner and improve the fixing efficiency of the unit, which fixes the toner to the paper with heat and pressure, achieving quick warm-up and an industry-leading TEC value of 0.33 kWh/week. In addition, the mass of packaging materials, including plastic materials, has been reduced by approximately 80% compared to previous models.

For the Japanese domestic market, the amount of plastic packaging materials (EPS, EPE) used for the current-generation A3 models has reduced by 86.3% from March 2024 production. Sharp is working to further reduce plastic packaging materials for its next-generation A3 model in the Japanese market.

Improvements in sustainability reporting for customers
Sharp continues to build on its established print management reporting (Job Accounting II) software, which informs customers of their usage and environment impact compared to the average usage in the last 30 days. Administrators can generate an enhancement report in which they can add the tree count, CO_2 (grams), and energy (watt-hours) data to understand their environmental impact and integrate these into their sustainability processes and strategy.

Sharp's Synappx platform particularly stands out in the breadth of capabilities. Synappx Cloud Print (SCP), launched in November 2023, encourages administrators and users to make more sustainable printing choices with on-screen prompts, such as duplex printing and deleting prints if multiple copies are sent by accident. It also includes a Sustainability Dashboard providing users with their sustainability summary, showing them how they rank in terms of sustainability.

In addition, Sharp continues to enhance its Synappx Manage service management platform, which unifies remote management and provides innovative energy profiles for customers. Sharp uses AI technology within offerings such as Job Accounting II, Synappx Cloud Print, Complete Print Security, and Synappx Manage to help customers evaluate and improve their sustainability efforts though real-time analysis of printing activities, actionable recommendations to print more sustainably, and insights into power consumption.

Strengths and opportunities

Strengths

- **Advanced progress in sustainability goals.** As well as the climate goal achievements, Sharp has made some progress over the past year in articulating sustainability as a key pillar of its product and service strategy. It demonstrates a strong vision, particularly in Europe, with the development of and enhancements to its sustainability services roadmap.
- **Comprehensive product roadmap for lower-environmental-impact MFPs.** Sharp has made reductions in energy consumption across both its A3 and A4 devices. It has raised the bar from around 5% use of recycled materials, now working to a goal of 50% recycled plastic for its devices. Alongside its New Life printer programme, it has a strong circular approach across its product lifecycle. Sharp is thinking creatively about impact reduction, with a plan to 3D print spare parts, primarily small plastic and metal parts such as paper feeding rollers, with the objective of reducing final disposal, GHG emissions from logistics, and virgin-material usage.
- **The Synappx platform is a powerful tool for sustainability.** Sharp has made significant investments in its Synappx tool, which helps customers understand their environmental footprint with in-depth reporting. This global platform is evolving into an IT service management tool that reflects Sharp's vision for a consolidated IT platform.
- **Transitioned from an ad hoc to established refurbished programme.** Sharp has moved from an ad hoc approach to refurbishment to its New Life MFP programme and set minimum standards for refurbishment across Europe.
- **UK virtual showroom technology.** Sharp is building channel sales enablement, and one key highlight is its innovative Virtual Showroom. This enables visitors to view and review products, services, and solutions in a number of 360-degree environments. Sharp reports that white-label versions of the Virtual Showroom have already been developed by Clarity, Newman Business Solutions, and Agilico.

Opportunities

- **Expanding sustainability services.** Sustainability capabilities within Sharp's services offerings are developing, notably the cloud-based Synappx Manage service management platform. As Sharp migrates fully to this platform, this will unify remote management for printers, MFPs, displays, and other future devices from across its portfolio. When combined with Synappx Manage AI analytics, Sharp will be able to improve support for customers' sustainability strategies by providing predictive data on usage patterns, volumes, and power consumption.

Sustainability strategy

The Sharp Eco Vision 2050 plan, which was established in 2019 and set the long-term environmental vision, is based on the Creating an Environmentally Conscious Company with Sincerity and Creativity environmental policy that goes back as far as 1992. Sharp also created its own SDGs in 1973 and now aligns with the United Nations Sustainability Development Goals.

Three areas were identified as priorities in the in Eco Vision 2050: Climate Change, Resource Recycling, and Safety and Security. The climate change goal was net-zero CO_2 emissions from Sharp's business activities and a push to create more clean energy than the amount of energy consumed across the entire Sharp supply chain by 2050. Interim net-zero targets were a 40% reduction by 2030 and 60% by 2035, against the 2021 base year. The 2050 activity plan for Resource Recycling is centred around the circular economy, with Sharp aiming to get to a position where no newly extracted resources will be used for making products (excluding those not suitable for recycling from an environmental perspective) and zero final waste disposal is sent to landfill by 2050. In the Safety and Security area, the aim is strict management of chemicals that could damage people's health, the natural environment, and ecosystems.

Sharp is accelerating activities to meet a revised target of 2030 for Scope 1 and 2 zero-carbon emissions. In fiscal 2023, Scope 1 and 2 emissions were 1,175k tonnes of CO_2, a decrease of 13.9% compared to the base year and a 6.9% year-on-year improvement. Scope 3 emissions were 2,316k tonnes, a 22% year-on-year reduction.

To support delivery of its sustainability vision and green transformation strategies, Sharp has set up an ESG Promotion Department. It also supports TCFD recommendations and will expand climate change-related information disclosure in accordance with the TCFD framework. Sharp participates in the Science Based Targets initiative and has been certified for SBT WB2℃. It has improved on this and, in March 2024, was certified for SBT 1.5℃. It is aiming for net-zero certification by accelerating its efforts toward carbon neutrality and promoting collaborative efforts with suppliers to reduce greenhouse gas emissions throughout the supply chain.

There is a focus on renewable energy to reduce Sharp's environmental impact, and initiatives include the introduction of solar power generation systems and use of green electricity at production bases in Japan and overseas. In fiscal 2023, the full-scale operation of PPAs introduced at factories in Thailand and China led to a significant increase in the amount of green electricity purchased to 14.58 million kWh, and the amount of self-generated electricity by solar power generation systems was 4.49 million kWh. In addition, from fiscal 2023, Sharp began purchasing non-fossil certificates at its Kameyama Factory and factories in Vietnam. As a result, the utilisation rate of renewable energy in electricity consumption has reached 6%.

Sharp has been operating an ISO 14001-based environmental management system since 1995 and acquired ISO 14001 certification for all worldwide production bases. All Sharp factories and most of its offices meet the ISO 14001 standard.

Eco-conscious design is delivering energy-efficient devices, and Sharp also runs recycling and refurbishment programmes, along with its use of recycled plastic and closed-loop materials recycling approach.

Product sustainability and circularity

As part of its environmental initiatives, Sharp develops 'Green Products' that are designed around seven objectives, which include developing and designing them to be energy saving/energy creating, conserve resources, be recycled, be used and disposed of safely, and use green materials, such as recycled materials and plant-based plastics. Devices are designed to be ENERGY STAR certified, and the latest MFPs are also certified to meet Blue Angel environmental criteria. Products rating particularly highly are certified as 'Super Green Products,' such as the full-colour MFP BP-70C45.

In the May 2024 medium-term management direction report, Sharp highlighted the objective of launching new products targeting the demand for carbon neutrality, although it has not released details yet.

Technologies to reduce energy consumption and improve device longevity include low-melting-point Mycrostoner and low-temperature fusing technology. The A4 BP MFPs feature low-temperature fixing toner, and the fixing efficiency of the unit has been improved, resulting in quick warm-up times that Sharp says have delivered an industry-leading total energy consumption (TEC) value of 0.33 kWh/week. Additionally, the photoconductor and developer units are designed to last the lifetime of the device, reducing CO_2 and waste.
The current generation of A3 MFPs also feature developer units that last as long as the main unit, and photoconductor units have a 25% longer lifespan than the previous generation. They are also equipped with an automatic toner cartridge eject feature that ensures the toner cartridge is guaranteed to be empty before it can be replaced, eliminating unnecessary toner waste and reducing unnecessary shipments. The TEC value is approximately 8–25% lower than the previous generation, and the target for the next generation is a further reduction of 13%.

The carbon footprint of the next generation of A3 MFPs is expected to be 14% lower than current models because of improving the fuser belt to provide higher thermal conductivity, improving the heater for lower energy consumption, and enhancing the software (controller) operation to optimise the warm-up and sleep mode sequence. To reduce waste and promote reusability, the next-generation A3 models will use the same consumables as the current A3 models and existing resources such as moulds and parts.

Upgradability and ease of repair and recycling are important strategic objectives. The current level of recycled material utilised within products such as the latest A4 BP series of MFPs is not disclosed. However, Sharp is working towards 50% of recycled plastics material as part of its goal of using no newly extracted resources to make products (excluding those not suitable for recycling from an environmental perspective) and zero final waste disposal to landfill by 2050.

The recycling proposition differs by region, but consumables recycling is widely available for cartridges, bottles, toner collection containers, and drum units. For example, toner cartridge remanufacturing is provided by Sharp Japan, and during FY22, remanufactured toner cartridges reached 68% of all toner cartridge shipments in Japan. Sharp Europe provides a toner cartridge collection/recycling service as part of service contracts. The total weight of collected material in Europe was over 1,990 tonnes between January and December 2023. No toner materials are incinerated or sent to landfill. Components from devices are reused, and between January and July 2024, 136 damaged/used devices were collected.

An innovative approach to recycling is emerging through the plan to 3D print spare parts, primarily small plastic and metal parts such as paper feeding rollers, with the objective of reducing final disposal, GHG emissions from logistics, and virgin-material usage. The plan will also help Sharp comply with 'right to repair' legislation while potentially extending the life of MFPs. Sharp anticipates using plastic from used MFPs and ocean waste.

New Life branded MFPs are an important aspect of the circular strategy, although the scale of the business in not clear. New Life MFPs are used devices, typically returned from existing customers, and are refurbished to Sharp's standards of security, quality, and performance. Consumables and perishable items and faulty/excessively worn parts are checked and replaced where necessary with original Sharp components. Hard drives and personal data are wiped, firmware is updated, and final safety and performance checks are carried out.

Supply chain

Sharp works to fulfil its social responsibilities by going beyond initiatives related to the quality, price, and delivery of parts and materials across its supply chain. It also engages with initiatives in areas of product safety, environmental protection, human rights and labour, and health and safety.

Suppliers are requested to comply with the laws, regulations, and social standards laid out in the Sharp Supply-Chain CSR Deployment Guidebook, which is based on the Basic Purchasing Principles. It also conforms to the RBA Code of Conduct. The Guidebook addresses the elimination of child/forced labour and discrimination, as well as compliance with labour-related laws, such as those dealing with employees' right to organise and right to collective bargaining. Suppliers are asked to actively promote such activities. Sharp periodically executes supply-chain CSR surveys to confirm how well suppliers are carrying out CSR based on the Sharp Supply-Chain CSR Deployment Guidebook and identify, assess, and reduce CSR risk in the supply chain.

Sharp also requests that suppliers take positive measures concerning conservation of the environment and environmental management, conducting business operations and developing products in an environmentally conscious way. Suppliers are required to provide parts and materials in accordance with Sharp's green purchasing guidelines. Contractually obligating suppliers to undertake CSR initiatives is one of the ESG evaluation items. Sharp periodically conducts supply chain CSR surveys to confirm how well suppliers are carrying out CSR activities.

Partnerships

- **TCFD.** Sharp supports the TCFD recommendations and is committed to expanding climate change-related information disclosure in accordance with the TCFD framework.
- **United Nations Global Compact.** Sharp is a signatory to the United Nations Global Compact (2009) and continues to support the 10 principles in the areas of human rights, labour, the environment, and anti-corruption.
- **Responsible Business Alliance (RBA).** Sharp shares the vision and mission of the RBA, which it joined in 2021, throughout the entire group.
- **Japan Electronics and Information Technology Industries Association (JEITA).** Sharp has been a member of the Responsible Minerals Trade Working Group of JEITA since 2012. The company actively takes part in JEITA's Responsible Minerals Sourcing Inquiry briefings as part of its efforts to spread understanding of responsible minerals procurement in the industry supply chain, as well as boost the capabilities of downstream companies.
- **Liaison Group of Japanese Electrical and Electronics Industries.** Sharp participates in the Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention – a group focused on further accelerating the pace of industry-wide climate change-related action.
- **Science Based Targets Initiative (SBTi).** Sharp's GHG reduction targets have been certified as scientifically based.
- **Atmoz Consulting.** Sharp Europe has entered into a partnership with Atmoz Consulting, a provider of certified climate finance offsetting projects. Sharp has donated to a biochar diversity project as a contribution towards its 2030 net-zero goal.
- **Registry of carbon footprint, offsetting, and CO$_2$ removal.** Sharp Spain signed-up for the registry that helps coordinate the efforts of Spanish organisations by calculating and reducing the greenhouse gas emissions generated by their activity.
- **GX League.** Sharp participates in the GX League, which was established in Japan in 2022 and is promoted by the Ministry of Economy, Trade, and Industry. GX stands for 'green transformation' – transformation of the entire economic and social system towards an early shift to carbon neutrality.
- **30by30 Alliance for Biodiversity.** The Alliance aims to conserve more than 30% of land and ocean ecosystems as healthy ecosystems by 2030, with the goal of halting the loss of biodiversity and restoring it by 2030. It is promoted by Japan's Ministry of the Environment.
- **Japan Center for Engagement and Remedy on Business and Human Rights (JaCER).** Sharp joined JaCER in 2022, and jointly with JaCER member companies, operates as a contact point for complaints regarding human rights violations in global supply chains.

- **Close the Loop.** In the US, Sharp works with recycler Close the Loop, which handles the toner collection and disposal process.
- **Nippon Express.** In Japan, Sharp has built a collection network with the logistics company for toner cartridge collection.
- **Additional partnerships.** Sharp also partners with a range of local and specialist organisations in areas such as reforestation, volunteer days, social foundations, and charities.

Sustainability services for customers

Sharp provides features to support customers' sustainability requirements, primarily from its MPS, including print and service management offerings.

- **MPS.** Features such as fleet assessments, right-sizing for current and future needs and optimisations including removing redundant and inefficient devices, and replacing existing ones with more energy-efficient alternatives help customers' sustainability initiatives by reducing energy consumption and emissions. Monitoring and management (on-premise or remote) enable preventative maintenance and automatic consumables replenishment to minimise engineer visits and prevent waste. Responsible printing aids such as duplex printing by default and secure print release conserve resources by reducing unnecessary printing and paper usage. The MPS offering supports Sharp-only fleets, and there is a more limited offering for mixed vendor fleets.
- **Synappx Cloud Print (SCP).** SCP is a cloud-based print management service that is also part of the overall MPS offering for Sharp-only fleets. It was released in November 2023, and sustainability support is a core concept. It is designed to help customers educate their end users and incorporate sustainability into their business processes. SCP encourages administrators and users to make more sustainable printing choices with on-screen prompts, such as duplex printing and deleting prints if multiple copies are sent by accident. A Sustainability Dashboard provides users with their sustainability summary, which shows them how they rank in terms of sustainability.
- **Job Accounting II (JAII)**. JAII print management is part of the MPS offering and has been in the market for over 10 years. It is deployed on-premise and can be used to manage and assess the environmental impact of printing activities for Sharp-only fleets, based on print volume and the type of printing options used, such as duplex, black and white, and secure print release. Customers can view usage and environmental impact compared to average usage over the previous 30 days. Administrators can generate an enhanced report that includes additional information such as tree count (based around paper use), CO_2 emissions, and energy use to increase understanding of the environmental impact of print activities, which can be integrated into sustainability processes and strategy.
- **Print Management (for mixed fleets).** Where customers have a multi-vendor fleet, Sharp offers a portfolio of third-party print management solutions, such as PaperCut, Y soft, and OptimiDocs, which also provide ways to reduce the environmental impact.
- **MPS print assessments.** Print infrastructure assessments are undertaken during the MPS sales process, and proposals include what organisations could do to improve sustainability. Typical suggestions include using print management to set rules to support responsible printing behaviour and follow-me-print systems requiring user authentication to reduce waste and boost security. Automating manual processes to save time and resources, for example, avoids the need to print invoices for sign-off. As part of the paper/digital transition, assessments can also highlight the benefits of digital communications for real-time delivery, with messaging tailored to different groups. Suggestions for fleet rationalisation and optimisation, replacing inefficient devices with alternatives developed with sustainability in mind such as use of recycled material, contribution to recycling programmes, and improved energy efficiency are also commonly addressed.
- **Service Management – device lifecycle management.** Offerings within this area include Remote Device Manager, which provides on-premise service management, and OneStop and MICAS, which provide cloud-based service management. OneStop is generally deployed in Europe, with MICAS in the US, and both are designed for Sharp devices. They collect management information across all printers and MFPs, monitoring metre readings and device status information to proactively dispatch replacement

QUOCIRCA

consumables on a 'Just in Time' basis for example. Remote capture of device alerts also allows for proactive support and maintenance.

- **Synappx Manage.** Sharp is migrating to a single proprietary service management platform, Synappx Manage. It provides cloud-based remote monitoring, proactive management, security support, and analytics. Synappx Manage will allow Sharp to unify remote management and provide a unified service to Sharp customers with multiple vertical products. It plans to incorporate remote management for printers, MFPs, displays, and other future devices from across its portfolio. With Synappx Manage AI analytics, Sharp is looking to predict potential usage patterns, volumes, and power consumption to provide customers with recommendations on how to optimise usage and settings to align print activities with their sustainability strategies.
- **Complete Print Security.** In 2022, Sharp introduced Bitdefender as part of its offering on A3 models. In September 2023, it launched Complete Print Security, which, in combination with Bitdefender and Sharp MPS, provides security surveys, print security policy management, end-point monitoring, and systems and data backup.
- **Green IT.** Swiss-based ITpoint Systems AG was acquired by Sharp in 2021. It deploys cloud-based services and technologies from its two data centres, which contribute to sustainability initiatives in several ways: high energy efficiency, sourcing 100% of energy from a local renewable source, feeding waste heat into the Berne and Zurich district heating network, avoiding the use of coolant and using rainwater for cooling on hot days, and using 84% of energy for computing power. Sharp Europe is migrating its data centre applications to ITpoint Systems, which will contribute towards Sharp Europe's carbon footprint reduction. Extending utilisation of these data centres to existing customers' cloud-based services and new services is an important active project. In the future, dealers selling solutions such as Synappx Cloud Print and Synappx Manage would be deploying these from Sharp's Green IT data centres.

Channel programmes

Sharp Marketing Japan (SMJ) has built a nationwide service network with partners that provides services on behalf of MFPs installed by retailers. Used toner cartridges can be collected free of charge, and cartridges are delivered to retailers upon request. The team also provides remote firmware upgrades.

- **Sharp Immersive Virtual Showroom.** In the UK, Sharp is piloting an immersive Virtual Showroom customers and partners can access online at any time to explore Sharp's offerings. Augmented reality enhances product evaluations. Sharp's consultative technology experts and account management team can provide guidance, and customers have the option to self-guide. Offerings on show include business applications, hosted telephony, cyber security, document and workflow solutions, managed print, audio visual (AV), and furniture solutions.
- **Training academy.** The Sharp Academy in Europe provides online learning for the channel, including providing information and updates on new sustainability credentials on Sharp products. Dealers are also able to access the Sharp Academy and complete training courses remotely.

Recommendations

Buyer recommendations

End-user organisations should focus on the following activities to understand and minimise the environmental impact of their print activities.

- **Assess the availability and transparency of suppliers' environmental data during procurement.** Quocirca's end-user Sustainability Trends study reveals that customers lack the environmental data they believe they require to report their carbon footprint accurately. It also shows that the lack of this data is a core inhibitor to their understanding of the environmental impact of their print activities. Buyers should look for energy efficiency data and third-party ecolabel certifications such as ENERGY STAR, EPEAT, and Blue Angel; data on the proportion of recycled materials in devices; and active promotion and easy use of energy-saving modes. Transparency in the net-zero progress of print suppliers and the channel, particularly in areas such as renewable energy usage, supply chain metrics, raw materials, and manufacturing impacts, should be factored into procurement processes because of their impact on net-zero commitments.

- **Undertake sustainability assessments.** To evaluate and optimise the print environment, sustainability assessments should be undertaken to examine current print infrastructure, usage analysis, and cost analysis for direct and indirect costs, along with an environmental impact evaluation to generate a custom sustainability report with actionable recommendations. Ensure assessments include device lifecycle assessments and carbon footprint data from suppliers because they will improve accuracy and help with regulatory compliance such as CSRD. The scope of sustainability assessments is expanding and starting to be able to assess the environmental impact of digital services and link print sustainability strategies to corporate strategies.

- **Encourage sustainable practices.** Cloud print services and MPS can encourage or enforce best practices and rules. Duplex, booklet, pull, or PIN printing can help minimise wasteful printing. Intelligent print management tools can ensure the most appropriate device is used for each print job by automatically routing large jobs to lower-cost, more energy-efficient devices and applying eco-settings to print jobs, such as lower-quality print for non-important jobs or full black-and-white printing for jobs that do not require colour. Look for devices with fast warm-up times, deep-sleep and toner-saving modes, low-temperature toners, and refillable ink bottles.

- **Embrace digital transformation.** Smart MFPs can provide document capture and management and enable automated document workflows. Activity logging for individual users and departments can be used to create audit logs and identify wasteful users or groups. Digital transformation minimises inefficient and costly paper use while enhancing productivity and security and maintaining audit trails. These digital capabilities will increasingly use AI and machine learning to optimise document processes. Ensure that devices chosen interoperate with software from ISVs that can then further enable digital workflows and enterprise application integrations.

Supplier recommendations

Print vendors should prioritise collaboration, the availability of sustainability data, clear sustainable messaging, and market education to help customers lower their carbon footprints.

- **Collaborate and partner.** Demand is growing for decisive action and greater transparency in sustainability practices from print manufacturers. Suppliers have committed to net-zero goals but will not achieve transformative change by acting alone. A collaborative approach between print manufacturers, ISVs, and channel partners can accelerate sustainability progress and drive meaningful change. By leveraging the unique strengths of this ecosystem – spanning hardware, software, and services – the industry can develop best practices and reframe the sustainability narrative to focus on the intersection of print and digital technologies.

- **Provide channel partners with environmental data.** Sustainability is a priority for channel partners that are under pressure to track Scope 3 emissions and must evaluate their vendor partners' sustainability credentials. Channel partners also play a critical role in the success of print vendors' sustainability strategies, promoting sustainability practices throughout the product lifecycle and offering end-of-life product take-back and recycling programmes to reduce e-waste. Channel partners also face calls from customers to help them achieve their sustainability goals. Partners need clear environmental data from their suppliers, but Quocirca's channel research indicates a sustainability gap between their requirements and what is available. Priority action areas for suppliers include clear and detailed metrics on product lifecycle impact, help with saving customers energy across print fleets, and sustainability-focused deal support and information. There are also calls for data on recycled-materials usage, carbon footprint assessment services, and access to carbon offsetting.

- **Draw on sustainability assessments to inform sustainability decisions and educate the market.** Provide sustainability assessment services to uncover opportunities to modernise customers' print landscapes and move towards more expansive assessments that can assess digital services outside the conventional print landscape. Ensure the assessments also deliver sustainability roadmaps for customers to act on. Sustainability assessments should be used to educate the market about environmentally responsible printing practices. For example, the carbon footprint data of different devices can provide a tangible demonstration of the impact of printing decisions and the quantifiable benefits of sustainable print approaches, sparking the adoption of best practices.

- **Harness AI throughout the print lifecycle.** Suppliers must suitably harness AI to help themselves, partners, and customers optimise for sustainability – while being aware of the need to manage the environmental costs of running AI models themselves. AI can be used across the print value chain for design, production, logistics, workflow automation, waste and consumables management, predictive maintenance, and remote management, including augmented reality (AR)-assisted remote assist, to determine the best approach for end-of-life processes. AI co-pilots that adjust printer settings in real time can also improve the end-user experience and quality of outputs while reducing waste and providing a step towards digitisation.

- **Promote remanufactured and refurbished products as sustainable end-of-life options.** Refurbishment programmes retune, repair, and redistribute used products. Remanufactured products are rebuilt from individual components that could be used or repaired or new parts. They are often overlooked, but both contribute to sustainability by prolonging product lifetimes, reducing waste and carbon emissions, and supporting the circular economy

QUOCIRCA

About Quocirca

Quocirca is a global market insight and research firm specialising in the convergence of print and digital technologies in the future workplace.

Since 2006, Quocirca has played an influential role in advising clients on major shifts in the market. Our consulting and research are at the forefront of the rapidly evolving print services and solutions market, trusted by clients seeking new strategies to address disruptive technologies.

Quocirca has pioneered research in many emerging market areas. More than 10 years ago we were the first to analyse the competitive global market landscape for managed print services (MPS), followed by the first global competitive review of the print security market. More recently Quocirca reinforced its leading and unique approach in the market, publishing the first study looking at the smart, connected future of print in the digital workplace. The Global Print 2025 study provides unparalleled insight into the impact of digital disruption, from both an industry executive and end-user perspective.

For more information, visit www.quocirca.com.

Usage Rights

Permission is required for quoting any information in this report. Please see Quocirca's Citation Policy for further details.