

Kyocera Document Solutions has championed innovative technology since 1934. We enable our customers to turn information into knowledge, excel at learning and surpass others. With professional expertise and a culture of empathetic partnership, we help organisations put knowledge to work to drive change.



# A Sustainable Future for Office Printing, Today

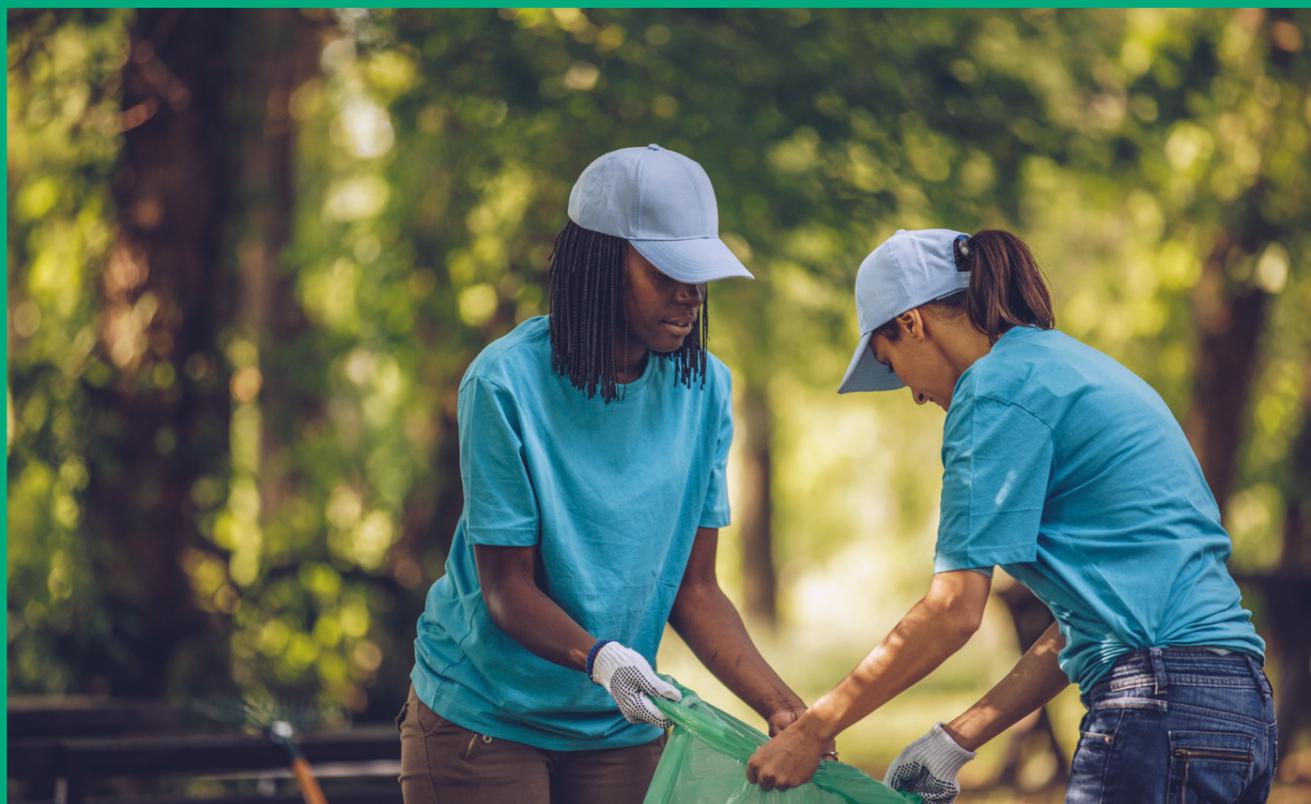
Achieving corporate sustainability objectives for printing and document management with ECOSYS from Kyocera.



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Environmental sustainability has become a significant motivator for decisions at every strata of society. Critically, more and more organisations are publicly seeking to reduce their environmental impact through more sustainable business practices, supply chains and procurement.



This paper explores sustainability in office printing in the context of Corporate Social Responsibility objectives. What is the scale of the challenge? How can organisations print less, more productively by using less energy? How far can document management technology innovation optimise sustainability?

## Sustainability: From Choice to Imperative

Global CO<sub>2</sub> and temperature levels are rising. The scientific consensus is that these are potentially reversible with significant reductions in carbon emissions. Compared to 1990 levels, advanced economies such as the UK have already reduced emissions by over 40%, due in no small part to the introduction of renewable energy. But more is needed, and the ultimate goal is to maximise the energy efficiency of essential devices such as office printers – without impacting business performance.

The final piece of the sustainability puzzle is pollution. Specifically, minimising harmful pollutants and waste, and finding innovative ways of manufacturing and operating office printers so that environmental impact is significantly reduced.

## The Response from Business

All this feeds back into the buying decisions that consumers and businesses make. A ThoughtWorks survey of 2,000 consumers found that more is expected to be driven by a concern for plastic pollution (62%) than price (57%) over the next 10 years.

Today, large organisations commonly adopt CSR goals and use environmental sustainability as a public demonstration of their commitment to achieving them. Meeting objectives such as more recycling, less waste to landfill and reduced carbon emissions not only boost corporate reputation but – more importantly – cut costs, increase efficiency and even boost productivity. Each of these is highly pertinent to the domain of printing and document management.

However, each year these challenges become more difficult. Incremental gains get harder the further you progress. It is clear that some organisations viewed environmental sustainability as a box-ticking exercise and are now waking up to the need to search more carefully for technological solutions – and align with like-minded manufacturers and suppliers who share their commitment to sustainability.

## The Role for Printing and Document Management in Sustainability Objectives

While print may seem a comparatively trivial consideration, research shows that print and document management can still have a material impact on a typical organisation's environmental footprint.

According to the Cool Climate Network based at UC Berkeley, paper and print products account for around 1% of all carbon emissions, while the ICT (information and communications technology) sector contributes another 6%. These may not sound significant, but add up in real terms to millions of tonnes of carbon per year.

Taking the UK government's conversion factors for carbon emissions, just 100,000 sheets of A4 paper has a carbon footprint of 6,000kg and requires eight trees and 2,000kWh of energy. The same paper recycled seven times produces 3,200kg of carbon over its lifetime.

What's important to recognise is that these are metrics that organisations can control through better choice of print and document management technology.



# Scanning, sharing, collaborating and printing documents of all kinds has arguably never been so important to how businesses operate.

## Areas for Improvement

Documents are integral to the life of most organisations, and form the bedrock of both formal and informal workflows. And it isn't just financial, legal or educational sectors and professionals who rely on them. Scanning, sharing, collaborating and printing documents of all kinds has arguably never been so important to how businesses operate.

Organisations that undergo sustainability audits find plenty of opportunities to leverage print in a more environmentally positive way. These break down into three areas:

- Choosing the right equipment vendor based on their track record and demonstrable commitment to sustainability (e.g. ISO 14001 environmental certification).
- Understanding the environmental sustainability of equipment vendors' manufacturing processes for printers and MFP components.
- Evaluating to what extent the use of printers and MFPs can contribute to sustainability objectives throughout their life cycle.

When drilling down into sustainable manufacture and use of printers and MFPs, organisations should consider the following:

### Equipment Manufacture

#### Use of Toxins

Components used in print devices can include metals, plastics and chemicals, and organisations should be concerned to source products that do not contain toxins, poisons or other harmful substances.

#### Use of Recycled/Recyclable Materials

Manufacturers should be committed to the use of materials that can be recycled in future. Where possible, manufacturers should also use recycled materials in the production, packaging and distribution of their products.

#### Lifetime Quality

Manufacturers must be focused on developing products that last, rather than products intended to become obsolete for recurring sales purposes. A highly reliable product will also be more environmentally sustainable by virtue of requiring fewer onsite engineer call-outs and other interventions.

#### Green Manufacturing Processes

Efficient manufacturing processes can significantly reduce the energy and water used in the production of print and document management solutions. Manufacturers should also be able to demonstrate the positive impact of a wider commitment to environmentally sustainable manufacturing processes.

**Manufacturers should be committed to the use of materials that can be recycled.**

## Print and Document Process

### Reduced Energy Consumption

Print devices are the workhorses of document processes and consume electricity even when resting idle. Many older models were never designed with energy efficiency in mind. Even among newer machines of equivalent performance, there can be a wide range of energy consumption ratings. Reduced energy consumption across a large print estate can equate to very large cost savings as well as a positive environmental impact.

### Long-life Components and Consumables

Print devices frequently require paper and toner replenishment, but these should be minimised wherever possible. Other components such as drums, fuser units and feed rollers should only require replacement after exceptionally long usage, if at all.

### Reduction in Print Volume

The fully paperless office has been achieved by just 1% of EU organisations. A more feasible objective is to go 'paper-light' (i.e. use less paper – particularly wasted paper through unnecessary prints) and this is often made possible through intelligent software features. As with reduced energy consumption, the impact of less print waste can equate to substantial cost savings as well as greater environmental sustainability.

### Reduced Noise Pollution

The quieter that print devices can be during operation, the better the experience for the people using and working near it. This is unrelated to the challenge of carbon emissions, but undoubtedly contributes to a positive and sustainable environment.



## How Sustainability is Built Into the ECOSYS Range.

### The Kyocera Way

The founding principles of Kyocera are committed to environmental management and aimed squarely at achieving sustainable corporate development (its motto is 'Respect the Divine and Love People').

In 1991, the 'KYOCERA Environmental Charter' was established to reduce the company's impact on the environment throughout the entire value chain.

All Kyocera operations are now focused on a vision for 2020, divided into three main areas: Green Products, Green Factories and Green Communication.

Within Kyocera Document Solutions, innovation has intensified to focus upon longevity, 3R design

(reduction, reuse and recycling of components) and low power consumption.

- 99% of Kyocera products are officially designated 'Green Products'.
- Kyocera has held the ISO 14001 environment certification for over 20 years.
- Kyocera Group is part of the United Nations Global Compact, the world's largest corporate sustainability initiative.
- The company has won the Japanese Environment Ministry's 'Commendation for Global Warming Prevention' for each of the last 8 years.



## ECOSYS: A 25+ Year Legacy of Environmental Sustainability

Kyocera's commitment to sustainable practices and products is exemplified by the innovation surrounding its ECOSYS product range. 'ECOSYS' means 'Economy, Ecology, Systems' and represents minimised environmental impact, optimised workflow efficiency and effortless system/process integration.

### Ultra-durable Photosensitive Image Drum.

All laser print devices employ a photosensitive image drum that allows letters and images to be written electronically and reproduced in toner, before being transferred and fused onto paper using heat and pressure. Typically, repeated use erodes the drum's special charge/discharge properties, necessitating replacement.

Kyocera's expertise in ceramics and advanced production techniques has vastly improved image drum durability. Its PSLP (Positive-charged Single Layer Photoconductor) drum technology delivers over 10 times the lifespan of a standard drum and requires one-third of the manufacturing energy to produce. It has gone one step further with the use of Amorphous Silicon (a-Si) multilayer technology to produce drums with a serviceable life of more than 600,000 pages. These ultra-high durability drums have incorporated an amorphous carbon-type coating, with hardness close to that of diamond, to protect the surface of the a-Si photoreceptor drum.

Considered 'ahead of its time' when launched in 1992, the use of long-life components and drums delivers a toner only concept for most users. This concept has been continually refined to further improve waste reduction and impact on the environment. Toner cartridges are now made from as few as eight parts, all plastic, all recyclable. Today the eco-friendly design of ECOSYS products has helped to reduce waste, user interventions and CO<sub>2</sub> emissions.

### Eco-friendly Toner.

Kyocera has developed its own eco-friendly toner (i-toner) utilising advanced production methods that use no organic solvents and very little water to minimise its environmental impact.

Its unique structure enables low-temperature fusing and long-term stability. Toner fusing accounts for around 70% of the total power consumption of a print device, but because i-toner can fuse at 30°C cooler than conventional toner, total energy usage is cut by up to half.

### Low Energy Consumption.

The peak power use of a print device happens when the fusing unit is working at full temperature. However, most of the time it sits idle in power save or sleep mode – which is when it is most crucial to minimise power consumption. For its ECOSYS range, Kyocera has developed energy-saving controllers to optimise power management and operate as low as 0.6 Watts in sleep mode; one-tenth of the energy used by a smartphone charger.

### Use of Recycled/Recyclable Plastics.

Up to 30% of the plastics used in Kyocera products are recycled, and over 99% of the total plastic can be recycled. We have also redesigned transport packaging to eradicate polystyrene and reduce the amount of single-use plastic. In toner cartridge packaging, only recycled cardboard is used, cutting out plastics altogether.



### Optimal Airflow for Quiet Running

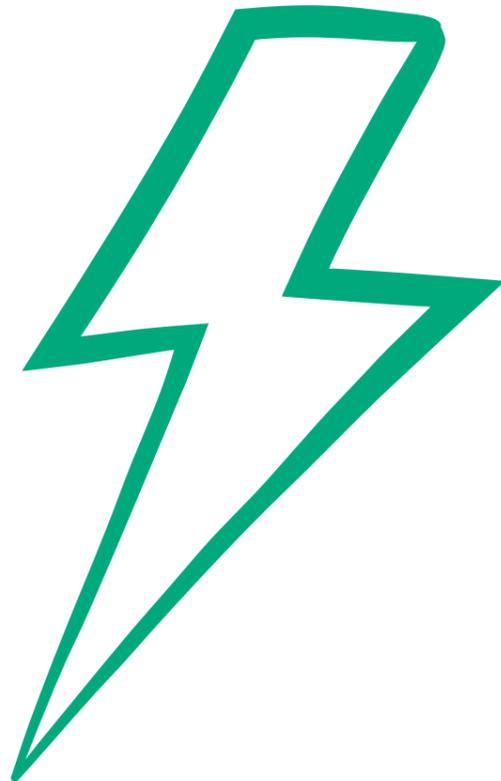
The noise produced by print devices is very important to personal working environments. The clever internal design of ECOSYS print engines enhances airflow and reduces the number of cooling fans required. In the latest generation of ECOSYS products, only one fan is used compared to four in earlier generations. Noise levels have been further reduced from the improved design of the drive motor mechanisms, reducing the number of motors required to drive the printing process from five to two.

The result is that ECOSYS products are quiet, inaudible in standby mode and barely above 50 decibels (the lowest on the market) when printing. Fewer motors and improved airflow don't just reduce noise, but are more reliable and require less energy overall.

### Integrated Software Enabling Wasteless, Efficient Document Processes

These include follow-me and secure print release solutions that ensure paper is not unnecessarily used, or print jobs uncollected or duplicated.

These and other business applications support the transition toward more digital use of documents and encourage the decline in paper output within document processes — addressing the needs of tomorrow's working practices and a future with significantly less paper printing.



## Conclusion



It would be a missed opportunity to look at environmental sustainability as simply a box-ticking exercise when considering your next print and document management solution.

Sustainable print and document management is not only about printing less or using recycled paper, but limiting the environmental impact of the whole product lifecycle, from packaging and day-to-day use through to the end-of-life process of decommissioning the machine and its components.

And while environmental sustainability changes societies, lives and futures — it also makes sound economic sense too. Reducing energy, materials usage and waste with ECOSYS from Kyocera is a positive outcome for everyone.

**For organisations that still need to print, it's all about choosing the right partner to deliver your printed documents in the most environmentally positive way.**