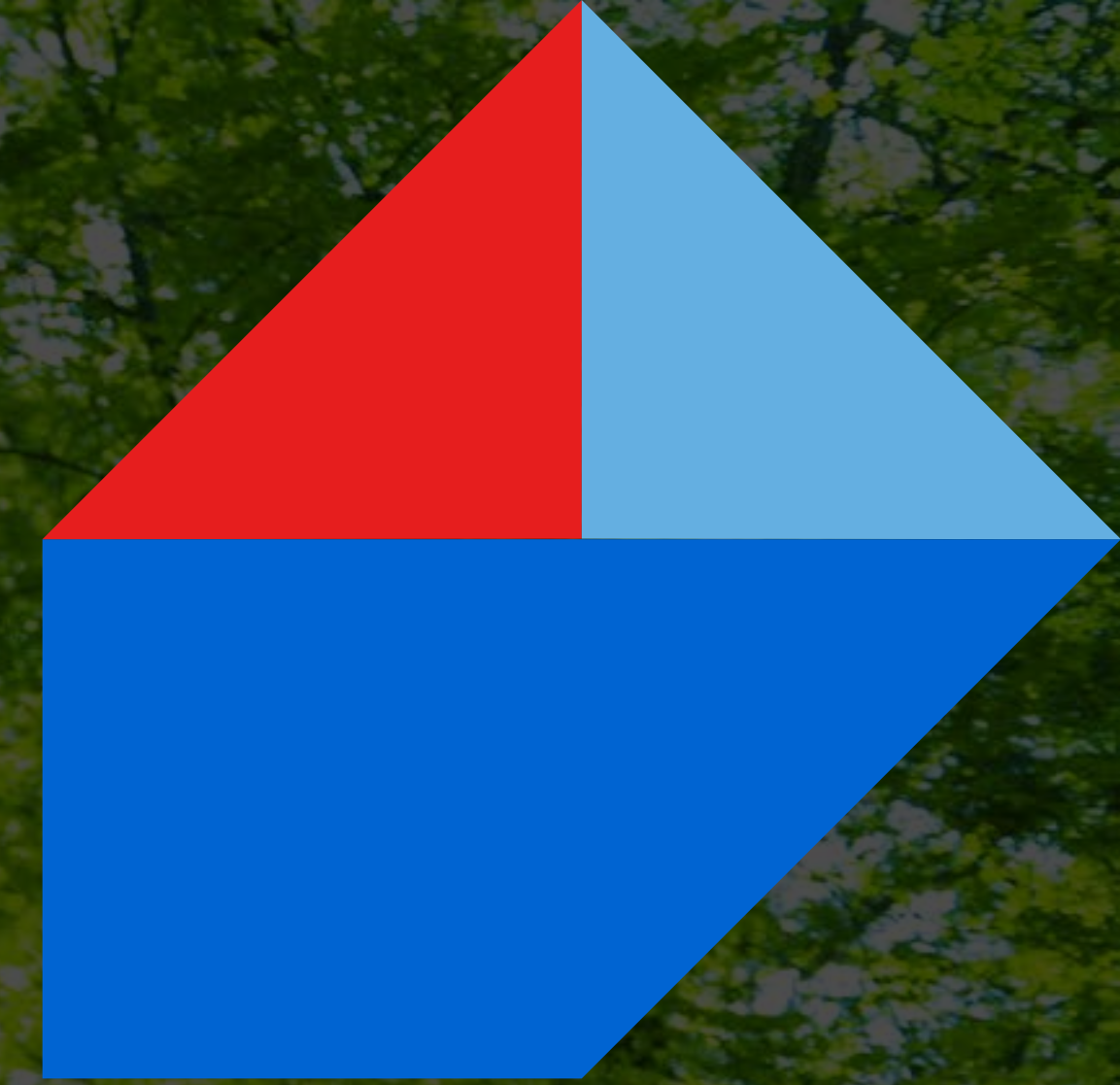


TOSHIBA



Toshiba Insight | Sustainability

Considerations when assessing the sustainability of your organisation's technology infrastructure:

- The Cost of Implementation
- Impact of Useful Life
- Waste Products



01

The climate challenge.

Why you should take the sustainability of your organisation seriously.

¹⁾ Data taken from NASA's Vital Signs of the Planet: <https://climate.nasa.gov/vital-signs/global-temperature/>

The Climate Crisis | The impending global warming and its consequences are forcing society to re-evaluate how we use our resources. If we do not drastically limit our use of resources and start moving in a new direction, we will not be able to meet the climate goals set by the Paris Agreement of 2015. Organisations are being forced to consider the environmental impact of all parts of their operations – from how they manufacture and package products, to how their lights are powered and what they might be producing as waste.

Shouldn't we just use less? | Whilst 'using less' can appear to be an effective way to mitigate a technology's environmental impact, societal and economic factors mean that implementing this is not always as straightforward. Organisations need to remain efficient and commercial operations must be competitive in order to survive and therefore need to avoid a situation where 'Using less' results in a drop in productivity. For example an employee might be more efficient proof-reading a document that has been printed off rather than on a screen.

The Climate Facts¹⁾

Carbon dioxide levels are rising | Levels of the important heat-trapping gas CO₂ have continued to rise and currently stand at **413ppm** (before the industrial revolution the previous high was 300ppm around 325,000 years ago).

Global temperatures are at record levels | According to the Goddard Institute of Space Studies, **19 of the 20 warmest years on record have all occurred since 2001.**

The amount of Arctic sea ice is falling | Arctic sea ice reaches its minimum area each September. The coverage of September Arctic sea ice is now **declining at a rate of 12.85 percent per decade**, relative to the 1981 to 2010 average.

Sea levels are rising | Since 1880, sea levels have risen by **over 2 centimetres** and continue to rise at **over 3 millimetres per year.**

02

What should you consider?

When assessing your technology, you need to consider three areas.

The environmental impact of any technology can be broken down into three broad areas, which you should consider before implementation. Under each heading, we provide a series of questions to be considered before implementing a technology.

However, the specific ways in which technology impacts the environment varies greatly from technology to technology. As Toshiba Tec's expertise lie in the way in which organisations manage their documents and information, this is what we shall focus on in this chapter.

The environmental cost of implementation.

What was the environmental impact of manufacturing the technology? Were any harmful chemicals used or produced in the manufacturing process? How much energy was needed to manufacture and deliver the technology? What is the carbon footprint of the technology at the point of installation?

The environmental impact of utilising this technology.

How long will this technology last (and therefore what was the impact of implementation divided by its useful life)? Are there any steps you can take to extend this technology's life? How much energy does this technology need when it is – or is not – being used? Does the technology require any consumables or spare parts to reach its useful life and what is the environmental impact of these? Does the technology have any features which would minimise environmental impact (such as energy save modes or ways to ensure users are following best practice and not wasting resources)?

The waste generated.

At the end of a technology's useful life, how will it be disposed of? Is it constructed of recyclable materials? Are its materials easily separated, or are they bonded together in a way which makes them difficult/impossible to recycle? Does the technology produce waste during its useful life? How is this waste dealt with?

03

The cost of implementation.

What was the environmental cost of manufacturing and delivering the technology?

When a new piece of technology arrives in an organisation's office, it is all too easy to forget that it actually started generating a carbon footprint long before it was received by the end-user. As a responsible manufacturer, Toshiba take full responsibility for this environmental impact and uses a dual approach when tackling this.

For more information on the United Nation's Sustainable Development Goals, visit: sustainabledevelopment.un.org/sustainability

Using fewer raw materials | The environmental impact of physical technology (as opposed to software), is greatly effected by the amount of raw materials needed to produce the device. Our products and services offer many opportunities for innovative design and manufacturing techniques as well as the reuse of materials. Our designers are constantly working on reducing the number and the amount of materials we use as well as ensuring that these are sustainable and non-toxic.

Offsetting unavoidable emissions | Whilst Toshiba strives towards a zero-emissions product, this isn't technically possible in the production and delivery of our printing devices. Since we are not yet able to reduce our CO₂ emissions to zero, we have created the Toshiba Carbon Zero Scheme to offset these emissions and deliver our products to our customers with a net-zero carbon footprint.

Toshiba Carbon Zero Scheme | This is a programme in which we compensate for the impact of our products and their procurement, manufacture and delivery through supporting projects around the world, which positively impact the environment through (amongst other things) the reduction of carbon emissions. These projects also support the United Nations's Sustainable Development Goals – so they are good for society as well as the planet.

As an additional option, organisations can also choose to continue offsetting their device after it's delivery, providing carbon neutral printing for the organisation. Since June 2009, throughout Europe Toshiba Tec have offset over 635,000 tonnes, which is equivalent to:



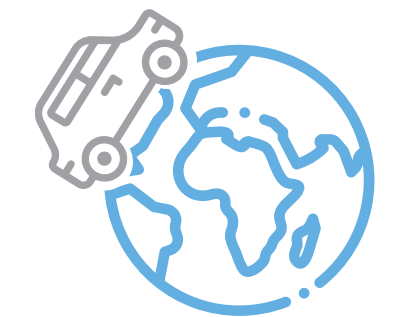
188,000

Return flights
London – Tokyo



194,000

Single-family homes
heated with oil for one year



83,000

Times around the
world in a car

Toshiba Carbon Zero Scheme | Projects

Toshiba's Carbon Zero Scheme facilitates carbon reduction projects around the world. We focus the majority of these projects in the developing world as this is where we can have the most impact.

African Fuel-Efficient Stoves | Supplying energy-saving cook stoves reduces reduction of firewood usage by up to 50%. This improves the lives of the community and reduces the carbon released by cooking.

Mozambique Borehole Rehabilitation | This safe water project is supporting rural Mozambican communities which were affected by Cyclone Idai in March 2019.

Kenyan Mangrove Restoration | By replenishing lost or destroyed mangrove forests along the Mombasa Estuary this project helps to redevelop valuable eco-systems both on- and off-shore.

Ugandan Borehole Rehabilitation | By renovating and repairing boreholes in remote villages across Uganda this project helps to restore a safe, clean source of drinking water for locals.

Brazilian Forestry Project | Actively protecting over 71,714 hectares of Amazon Rainforest through educating locals and patrols, the Brazilian Forestry project enables the rainforest to continue to act as a sponge absorbing CO₂ and protecting wildlife.

For more information on our Carbon Zero Scheme, visit: <https://www.toshibatec.co.uk/sustainability/carbon-zero-scheme/>



04 Impact of the useful life.

How can you minimise the environmental impact of using your technology?

How can printing impact the environment? | For the most part, lowering the environmental impact of your print infrastructure is about lowering energy consumption and resource consumption. Simplistically, the majority of office printing devices work by moving a sheet of blank media (such as paper) through the device, heating powdered toner so that it turns into liquid and bonds in a particular pattern on a sheet of media and outputting the final print (potentially via a ‘finisher’ for stapling, folding and/or hole punching).

There are two main areas where printers themselves can adversely impact the environment; the **energy required to heat the toner**; and the **replacement of moving parts**.

How can we reduce this impact? | We need to make sure that the toner is heated in the most efficient way, so that we minimise the amount of toner and paper being used. It is also vital that the moving parts are high quality and last as long as possible. Ensuring that the device is well maintained also allows it to operate at peak efficiency and to extend its useful life.

Efficient by Design

Toshiba designs its printing devices to be as efficient as possible. When a device is not in operation, it **automatically enters a standby mode** and uses extremely small amounts of energy.

It is crucial that **energy-saving functions do not impact usability or productivity** for end-users so that they are universally adopted. To this end, Toshiba utilises IH-Fusing a low energy, induction-based warm-up of the fuser unit with a short activation time. This short activation time ensures that users are not left waiting for their documents.

Toshiba maximises its use of common parts across its devices. Utilising common parts means that our engineers have to carry fewer parts with them, **improving their fuel efficiency**, whilst also enabling them to carry a larger selection of parts so they can fix a device first time, without the need for multiple visits – cutting emissions further.

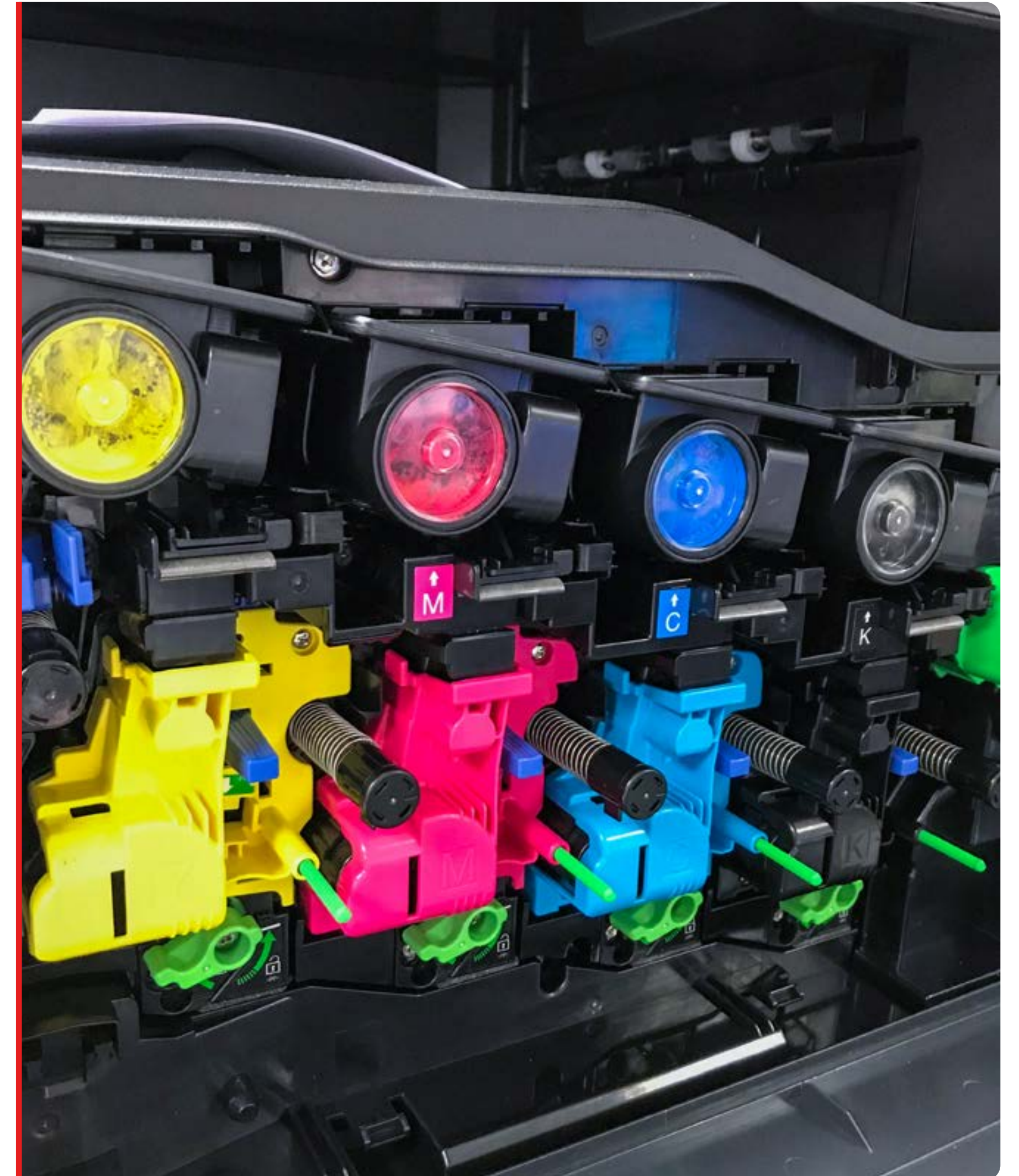
Maximising usable lifespan

Implementing a technology of any sort incurs upfront environmental and financial costs. By maximising the usable life of a product, we can ensure that these upfront costs occur less frequently and also maximise the return we get on each investment.

All printing devices have some moving parts and over time these start to deteriorate. There are a number of steps you can take to maximise the lifespan of your device:

Regular Servicing | Through regular servicing, we can ensure our devices are operating at peak efficiency which means they are consuming less energy and waste less toner. This also means that our devices last longer because they don't have to work as hard to keep up with operational demands.

Use the right consumables | Manufacturers stringently test their toner and optimise it to their machines. Using refilled or counterfeit toner may appear to save your organisation money but it can cause lasting damage to your device and drastically lower its efficiency. Similarly, manufacturers recommend media which has been tested with their device. Using un-tested media can wear out moving parts faster and lower the print quality of your device.



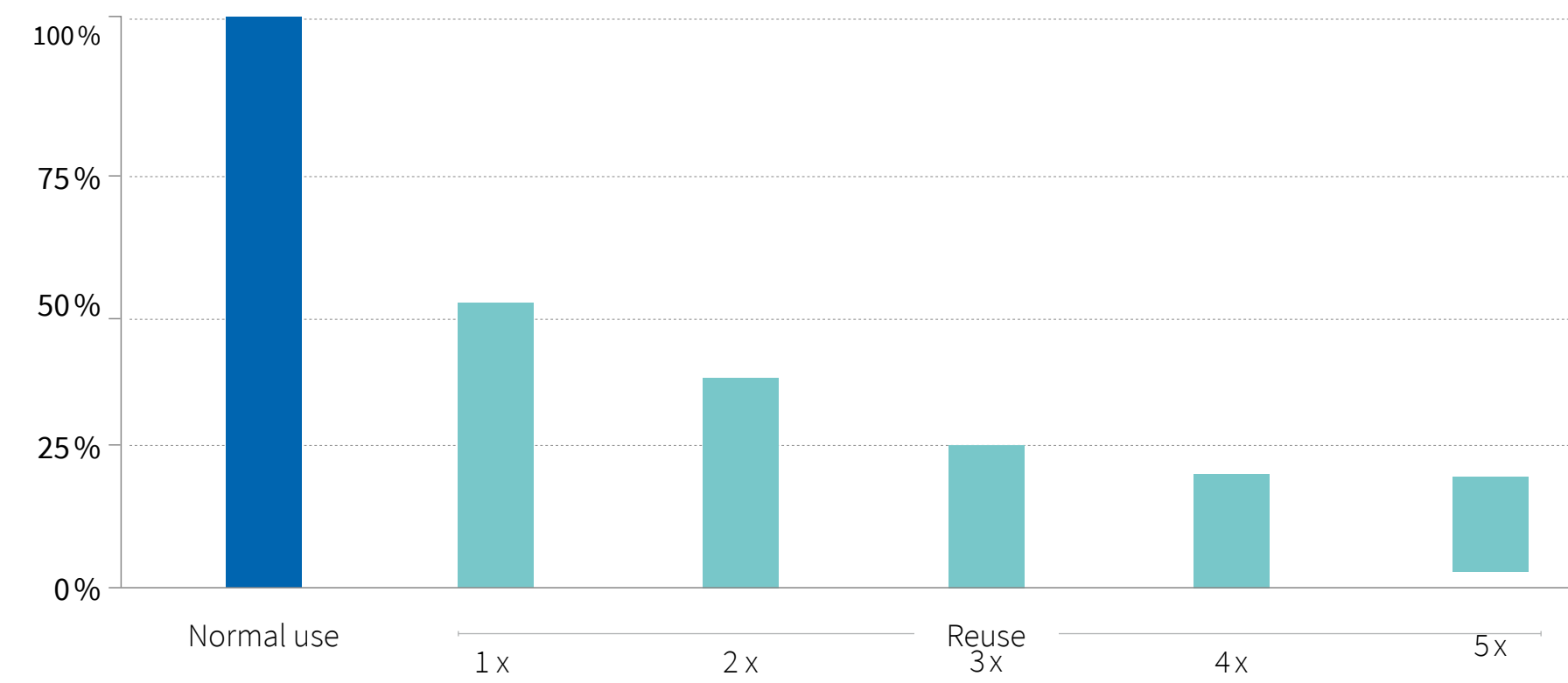
Reduce paper consumption

When organisations want to **save paper**, they automatically want to **print less** and this is a good thing because **each sheet of paper takes 10 litres of water to make!** However, it can often be problematic, costly, or both. People like to have physical copies of documents and in many cases are less productive without them. Added to this, alternatives to paper copies (such as tablets) can often be costly or damaging to the environment in different ways. Toshiba have approached this problem in an ingenious way – the Hybrid MFP.

¹⁾Based on statistics provided by The World Counts: www.theworldcounts.com/stories/Paper-Waste-Facts

For more information on our Hybrid MFP, visit: www.toshibatec.co.uk/sustainability/hybrid-mfp

Toshiba’s Hybrid MFP | Toshiba’s Hybrid MFP is a world first – allowing the same piece of paper to be printed on, the ink erased and the piece of paper **reused again and again**. By utilising this incredible technology, organisations can reduce their paper consumption by up to 80% without reducing the amount of printing they do or investing in any other paper-free alternatives.



By re-using paper, the Toshiba Tec Hybrid MFP can significantly reduce your paper consumption.

Temporary Documents

The average printed document has an incredibly short life span. According to The Paperless Project, **45% of documents end up in the bin by the end of the same day they were printed**. And, with the average US office worker printing **10,000 sheets of paper per year¹⁾**, this results in significant paper wastage.

A change of workflow is clearly needed from this;

Print - Recycle

to this;

Print - Erase - Reuse - Repeat - Recycle

By using the same sheet of paper up to five times, the benefits should be immediately obvious. Less water and trees are consumed in the production of paper, less CO₂ is emitted delivering paper, and less money is spent by businesses.

By pairing the Hybrid MFP with Pilot’s FriXion pens, users can even mark up temporary documents as normal, as the Hybrid MFP can erase the ink from these pens, as well. Therefore, environmental savings are easy to achieve as little change is required from organisation’s employees.

05

Waste products.

What waste does the technology produce?

Some technologies can produce waste consumables throughout the product's life. For example, most office printers require toner or ink, blank paper, and a waste toner bag/box. All of these consumables can either be refurbished or recycled, assuming the correct procedure is followed.

Waste consumables from printing | Toshiba have designed their toner to be straight-forward to recycle. We encourage our customers to recycle their waste toner cartridges by offering our Eco Box Scheme. Should our toner end up in general waste, we have ensured that it is free from harmful chemicals.

Toner Recycling | The recycling of toner and waste toner bags should not be a hassle for an organisation. That's why Toshiba offer the Eco Box Scheme. This allows organisations to collect and store the waste from their device until it can be shipped in bulk to Toshiba's professional recycling partners.



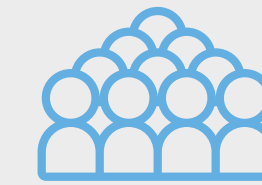
Disposal of devices at the end of their useful life | Once a product reaches the end of its useful life, its constituent elements must be dismantled and converted back into raw materials. In order to make this process as easy as possible, ease of dismantling needs to be considered from the product's conception. Materials which require different recycling process should be easily separated and the device should be easy to disassemble for both repairs and disposal.

Toshiba ensures that its materials are reusable with **95% of all the materials we use in our MFPs** being recyclable at the end of the machine's life. We also make it as easy as possible to sort the different materials in our MFPs. For example, the different types of plastic we use in our devices are colour coded by type - so that a disassembler can quickly determine which plastic is which.

The professional deconstruction of devices is tested and optimised throughout product development. Through the use of standardised connections, **Toshiba devices can be deconstructed by a single person using only three standard tools.** Modules made of materials that cannot be recycled together are constructed in such a way that the materials are separable or have separators between them.

¹⁾Data taken from:
Technische Hochschule
Ingolstadt (Technical
University Ingolstadt)

The impact of our waste¹⁾



The global population is expected to grow from **7.55 billion to 11.18 billion** by the year 2100.



We would already need **1.7 earths per year** to cover our current consumption of resources.



In 2016, the world produced **2.02 billion tonnes** of waste. In 2030 it will be almost **2.60 billion tonnes**.



The **44.7 million tonnes** of electronic waste that the world produced in 2016 included gold, silver, platinum and other metals with a total worth 55 billion dollars. But, **only 20% of it was recycled**.



The professional recycling of a single smartphone saves **14 kilos of primary resources and 58 kilos of CO₂** and other greenhouse gases.

06

What to do next.

Discuss your print infrastructure with one of our consultants.

Toshiba work with business of all sizes, from small start-ups to global enterprises. Having worked across diverse and demanding sectors, we have the experience to help your business overcome technical challenges and flourish.

At Toshiba, we do not believe in ‘one size fits all’. Instead, we work with organisations to build bespoke solutions tailored to organisational needs. This helps our solutions seamlessly integrate into existing systems and workflows which minimises cost and disruption to you organisation.

To get started, we recommend a call with one of our experts to discuss the challenges your company is facing and the various options available to you to address these.

We look forward to helping your business with a secure, efficient and environmentally friendly print infrastructure.

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