

Circular Economy



Your guide for Printing and Packaging





A Revolution in Print

“Anyone who believes in indefinite growth on a physically finite planet is either mad, or an economist”

Kenneth Boulding,
Former president of the
American Economic Association³

A dramatic change is underway globally across industries. In the utilities sector, energy from renewable sources is now more accessible and affordable than that from fossil fuels. In the transport sector, tens of millions of electric vehicles roam the world’s roads – when a decade ago they were almost unknown. In the finance sector, some US\$31 trillion¹ of funds are held in so-called ‘green’ investments.

This revolution is dramatic, disruptive, and driving forward at an unprecedented rate. And it is starting to gain traction in the print and packaging industry too. We are seeing ever more companies take a ‘circular economy’ approach to the way they produce packaging and paper products which is significantly more sustainable than the current norm. More materials than ever are designed to be reused and recycled – and traditional forms of packaging that are not easily reused are being replaced.

A circular economy involves taking a new approach to print – by using materials that can be easily recycled, packaging that can be composted, and by using printers and machinery with low or no carbon footprint. While this development is exciting, obstacles remain; rates of recycling and reuse are still relatively low in much of the world. In the EU, for instance, only 56% of waste is recycled.²

In this eBook, we look at how your brand or your printing business can engage with this new approach to print.

Your journey toward a Circular Economy

What happens to your company's printed materials and packaging after they've been used?



Linear Economy

For the last two centuries, the dominant production model in the industrial world has been one of 'take, make, waste'. Raw materials are extracted, transformed into goods and, finally, deposited in landfills. However, we now know that this model is simply not sustainable in the long term.

Recycling Economy

In recent decades, recycling has become more common and many goods are reprocessed through at least one or two cycles before eventually being wasted. This is an improvement, but there are now growing calls for an economy based on 'circularity.' In a circular economy, our production system is reimagined so that components and products are reused and repurposed several times over.



Circular Economy

A circular economy would have enormous benefits - one estimate suggests humanity could cut carbon emissions by up to 44%⁴ if we implemented this model. Nature would thrive too - with fewer resources extracted and less waste dumped in oceans, nature would be able to 'bounce back.' And this is something that consumers expect:

92%

of respondents to a recent survey said that sustainable business practices should now be standard.

9 of 10

people believe brands have a responsibility to take care of the planet.⁵



What is your plan for transitioning to a Circular Economy?

If you manage a brand or a printing company, your operations play an integral role in the transition to a more sustainable, circular economy. From the choice of material you use for packaging to the sources of energy used when printing, your decisions can play an important role in helping the world transition to a circular economy.

HP Indigo is committed to helping you on your journey to more sustainable printing. In this eBook, we aim to demonstrate how brands and printing service providers (PSPs) can enact a circular economy approach.

Companies are engaging in the circular economy in order to:

- Make a significant contribution to our planet's 'health'
- Significantly reduce waste and energy costs
- Cut storage costs
- Improve brand image and trust, and
- Have a more flexible and adaptive way to do business



HP Indigo enables sustainability and circular economy in printing with the goal of:

Reduce Global Warming by 65% vs Analog printing - Based on HP's Lifecycle Assessment for HP Indigo 25K digital presses

Reduce Packaging Waste up to 26% - Based on IDC's Packaging Research

Enable circular economy with a choice of over 1500 media with sustainable credentials

Empowering brands to accelerate their sustainability goals

HP Indigo maximizes our sustainable impact by acting as a sustainability catalyst in the ecosystem by our unique capabilities and unique brand innovation services

HP Indigo: Helping you print more sustainably

Providing global leadership in digital printing, HP is fully invested in the circular economy concept, and we have received numerous awards recognizing our sustainability efforts.

Unlike traditional methods, digital printing provides your brand or printing business with the tools to engage with the circular economy model. A digital printer allows you to print on a wide variety of sustainable media, reduce energy usage, and produce less waste.

**12,650
tonnes**

of CO2 avoided through offsets for all HP Indigo presses

**323
tonnes**

of HP Indigo presses refurbished 14% of total presses shipped during the year

**138
tonnes**

of spare parts (67% of parts returned) reused after refurbishment

**330
tonnes**

of binary ink developer components (49% of the amount shipped) and 1,416 tonnes of other supplies recovered for recycling

**16% of
plastic**

content in HP Indigo hardware, supplies, and packaging (excluding ink) was non-virgin, through parts reuse or the use of post-consumer recycled content plastic.



HP Indigo's Sustainability Time-line

At HP Indigo, we are dedicated to reducing our own waste and energy consumption. However, we believe the true potential of digital printing is how it helps your company enter the circular economy.

- | | |
|------|--|
| 2006 | R presses production line starts (80% of parts press reused) |
| 2009 | Starting free of charge BID and Spare part Take back program (saving total 400 tons of metal & plastic/year) |
| 2012 | Carbon neutral manufacturing begins |
| 2014 | RIO (Regenerated Imaging Oil) system – 20-50% less liquid carrier waste from the press. |
| 2015 | EPM – Enhanced Productivity Mode |
| 2016 | Peer-reviewed LCA (Life Cycle Assessment) for Indigo printed pouches |
| 2017 | High solids ink: reduced carbon footprint of ink transportation and less liquid carrier waste |
| 2018 | TUV certification for compostable pouch |
| 2020 | Introducing the HP Indigo 100K with reduced energy and waste per printed page |
| 2025 | Zero waste sites
Carbon neutral sites
8% energy reduction at sites* |
| 2030 | 45% recycled content in products & packaging
16% energy reduction at sites* |

HP Indigo supports your journey toward a Circular Economy

Whether you are a major consumer-facing brand or a specialized printer, HP Indigo can support your strategy for engaging with the circular economy.



How does Indigo help brands print more sustainably

Almost all consumer goods require packaging to help keep products safe and for marketing. However, packaging has an outsized environmental impact. In the United States some 80 million tons of packaging was produced in 2017, of which 40% ended up in landfills.⁶ HP Indigo provides sustainable and recyclable solutions for packaging.

Compatibility with plastic recycling

HP Indigo is a member of CEFLEX (Circular Economy for Flexible Packaging). We offer a variety of products that support plastic recycling, such as single polymer flexible pouches, PET bottles, and shrink sleeves.

Paper and flexible film de-inking

HP Indigo prints can be recycled into many useful fiber-based materials. This means that many kinds of packaging can be repurposed multiple times.

Ink safety

Your customers' health and safety is of paramount importance. And this is why HP Indigo's Electriink complies with the EU REACH standard and additional regulation requirements for chemicals, as certified with most of the leading press models are also certified by Intertek's Green leaf.

Compostable pouches

Many types of printed paper or flexible films are unsuitable for composting. However, HP Indigo's printing inks have been certified by TUV Austria for use on compostable labels and flexible packaging, meaning they can be left to compost.

How does HP Indigo help print providers to be more sustainable

Print service providers play an invaluable role in helping publishers and brands communicate with their customers. Indeed, the global market for printing services is set to reach US\$821 billion by 2022.⁷

PSPs face numerous challenges when it comes to sustainability, and traditional plate and cylinder methods are wasteful and energy intensive. However, digital printing with HP Indigo can help you move toward the circular model.

Energy saving

Our state-of-the-art presses are energy efficient and cut your energy per printed page compared to traditional methods.

Waste reduction

A digital press allows your company to eliminate plates and cylinders, produce short 'just-in-time' runs, reducing set up, changes and mistakes waste, and reduce inventory and warehousing costs.

Peer-reviewed life cycle assessment (LCA)

Our digital HP Indigo 20000 has been independently audited as part of LCA studies and is shown to be significantly less environmentally damaging than traditional methods.

Print on responsibly sourced media

HP Indigo's digital presses allow you to print on responsibly sourced media - our presses are compatible with over 1,500 media carrying environmental credentials.





HP Indigo: Our sustainability commitments can help your Circular Economy initiatives

Your customers, public opinion, and in many countries, governments increasingly expect that sustainability is considered at every level of your company's processes. At HP Indigo, we believe that high-quality printing, beautiful design, and safe, functional packaging will continue to play a crucial role in sales and marketing - but processes will need to change to make that printed material as sustainable as possible.

We are dedicated to helping our customers achieve circularity and have made several significant commitments to become more sustainable ourselves:

Improving your supply chain

'Just-in-time' printing reduces the need for big inventory, therefore, reduces your carbon footprint throughout the supply chain.

Responsible sourcing

We reused and recycled over 1000 tons of metal and plastic in 2020 and 2021

Low carbon manufacturing

HP Indigo aims to reduce energy and waste at our manufacturing facilities as a way of life. Whatever we are unable to eliminate during press production, we offset. Furthermore, part of our energy usage is covered at our Israeli production plant, which generates over 1 million kWh each year.

Reducing the carbon footprint of product transportation

We have redesigned our inks to be more concentrated. This allows us to reduce our plastic tube production, and reduce the supply chain and plastic waste at our customers' sites.



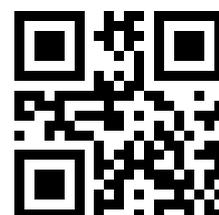
Next steps on your journey to a Circular Economy

At the start of this eBook, we imagined a near future where the circular economy was the norm. In this scenario, a regular consumer could compost magazines, recycle everyday plastics, and return coffee pouches to be cleaned and reused.

There is nothing stopping your business from making that scenario a reality today; the technology and materials are already available. However, most brands and print service providers remain locked into the established 'take, make, waste' model of production. Nevertheless, consumers are increasingly demanding that your packaging and printed media be produced in a more sustainable manner. And this is where HP Indigo can help.

As one of the world's leading digital printing company, we provide PSPs and brands with the means to foster the circular economy - to meet the expectations of your consumers and the needs of the planet.

To learn more about HP Indigo and the circular economy, please visit:
hp.com/go/indigo-sustainability





Forward-looking statements

This report contains forward-looking statements that involve risks, uncertainties, and assumptions. If the risks or uncertainties ever materialize or the assumptions prove incorrect, the results of HP Inc. and its consolidated subsidiaries (“HP”) may differ materially from those expressed or implied by such forward-looking statements and assumptions. All statements other than historical facts are those that could be deemed forward-looking statements.

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