

The Butterfly Effect in Publishing Innovations

Individual and Collective Actions lead to
Immediate and Long-Term Impact

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Publishing Market Development Manager



Agenda

The Butterfly Effect

Innovations in Sustainable
Publishing

OEM Technology

Production Strategy

Culture and Community

Migration Generations



Fairhope

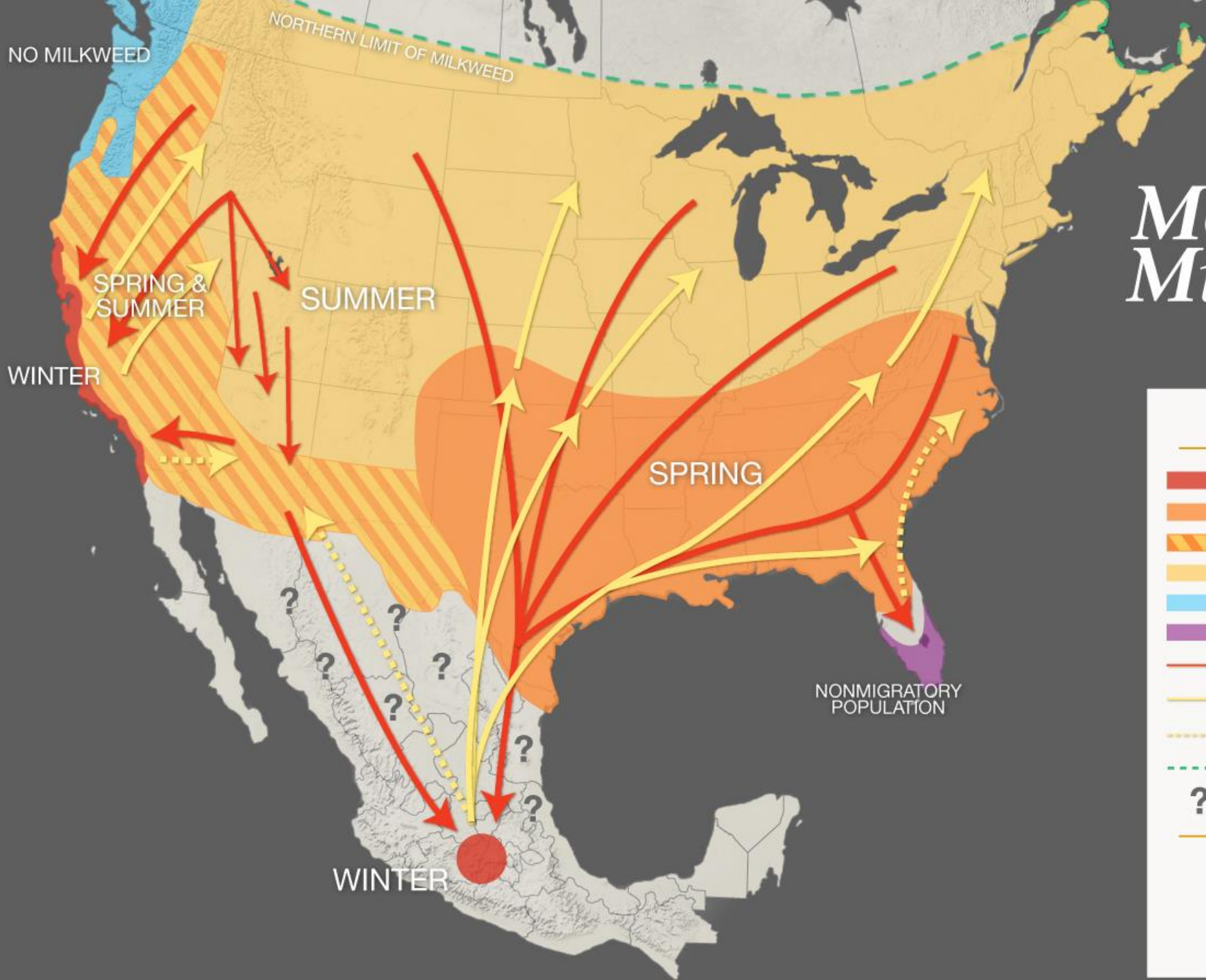
A single tax colony founded by 28 farming families from Iowa in 1895 on principals of shared ownership, collective responsibility, and progressive education

Located on the Mobile Bay at the edge of the Gulf of Mexico

Seasonal home to writers and artists, Northern snowbirds, and vacationing Southerners

And migrating monarchs





Monarch Migration

Spring & Fall

LEGEND

- Overwintering areas
- Spring breeding areas
- Spring & summer breeding areas
- Summer breeding areas
- No milkweed - no breeding area
- Nonmigratory population
- Fall migration
- Spring migration
- Unconfirmed migration
- Northern limit of milkweed
- Potential monarch breeding habitat

The Butterfly Effect in Publishing Innovation



PREPARING FOR CHANGE

Original Equipment Manufacturers form the foundation of sustainable print solutions with production, supply chain, hardware, and consumables that address short and long-term goals.



EMERGING ANEW

From the OEMs, to paper and other consumables providers, print service providers to publishers, recent supply chain challenges offer opportunities for new and sustainable strategies for production and fulfillment.



BEGINNING THE JOURNEY

Establishing a collaborative culture and fostering mutually beneficial relationships—from the point of acquisition, editorial, and design, to production, shipping, and warehousing—create immediate gains and long-term promise for multigenerational action.

Original Equipment Manufacturer

Technology Innovations

BUILDING A FOUNDATION

Sustainability is a core value



HP IS RECOGNIZED AS ONE OF THE WORLD'S MOST SUSTAINABLE COMPANIES



Member of
Dow Jones Sustainability Indices
Powered by the S&P Global CSA



SUSTAINABLE IMPACT

A Business Imperative

\$1B+

New sales where sustainability was a known consideration, second consecutive year¹

53K

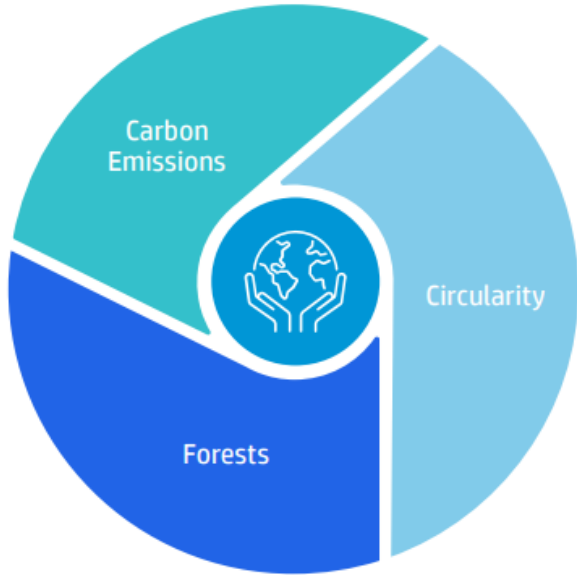
Employees empowered to set Sustainable Impact goals as part of annual goal-setting process

50%

HP aims to enroll 50% of its HP Amplify partners in the voluntary Amplify Impact program by 2025

Our Strategy

We have created an ambitious agenda, rooted in science and aligned to the UN Sustainable Development Goals, that connects HP to the most defining and urgent issues of our time where we can have the greatest impact as a brand: Climate Action, Human Rights, and Digital Equity.



PLANET

Climate Action

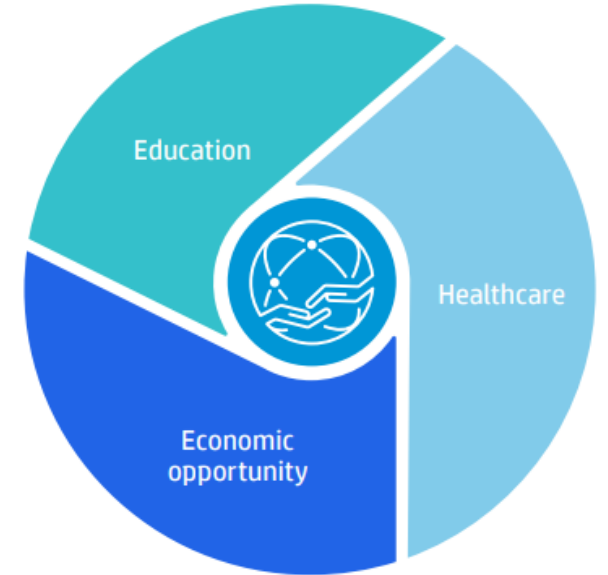
Drive toward a net zero carbon, fully regenerative economy while engineering the industry's most sustainable portfolio of products and solutions.



PEOPLE

Human Rights

Create a powerful culture of diversity, equity, and inclusion. Advance human rights, social justice, and racial and gender equality across our ecosystem, raising the bar for all.



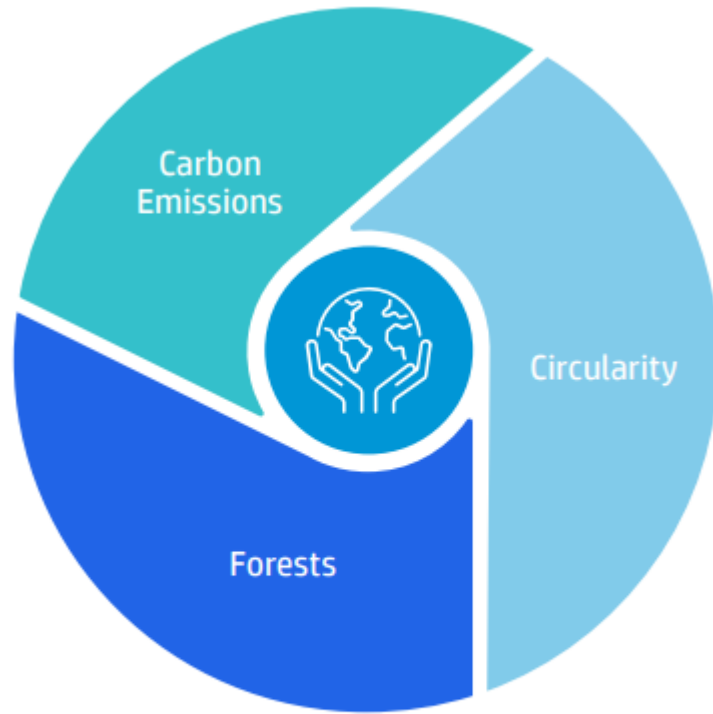
COMMUNITY

Digital Equity

Lead in activating and innovating holistic solutions that break down the digital divide that prevents many from accessing the education, jobs and healthcare needed to thrive. Drive digital inclusion to transform lives and communities



Carbon emissions



PLANET
Climate Action



By 2040
Net zero value chain
by 2040

By 2030
Reduce absolute value
chain emissions 50% by
2030 compared to
FY19¹

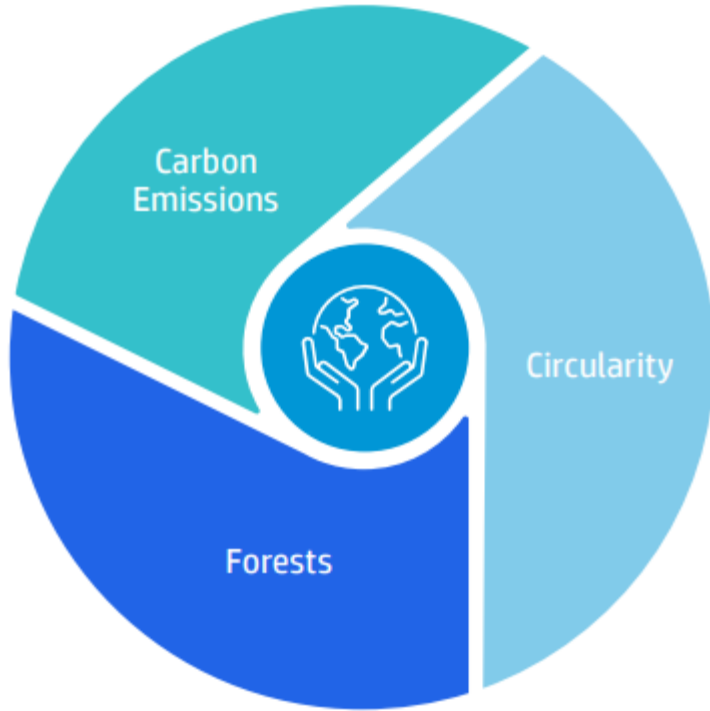
By 2025
Carbon neutral HP
operations by 2025

Carbon neutral HP
supplies business by
2030

¹ Scope 1, 2 and 3 GHG emissions. Compared to FY19. Excludes non-HP paper consumed during product use as an indirect emissions source in accordance with the GHG Protocol and outside HP's own value chain.



Forests



PLANET
Climate Action



Ongoing
Maintaining zero deforestation for HP paper and paper-based packaging²

By 2030
Counteracting deforestation for non-HP paper used in our products and print services by 2030¹

¹ Fiber by weight will be 1) certified to rigorous third-party standards, 2) recycled or 3) balanced by forest restoration, protection, and other initiatives through HP's Forest Positive Framework. Paper does not include fiber-based substrates for HP industrial presses not listed in HP Media Solutions Locator catalogues.

² HP brand paper and paper-based product packaging are derived from certified and recycled sources, with a preference for Forest Stewardship Council® (FSC®) certification. Packaging is the box that comes with the product and all paper (including packaging and materials) inside the box.



Sustainable forests collaborative



Develop science-based targets for forests



Responsibly source HP paper and packaging



Restore, protect and manage forests



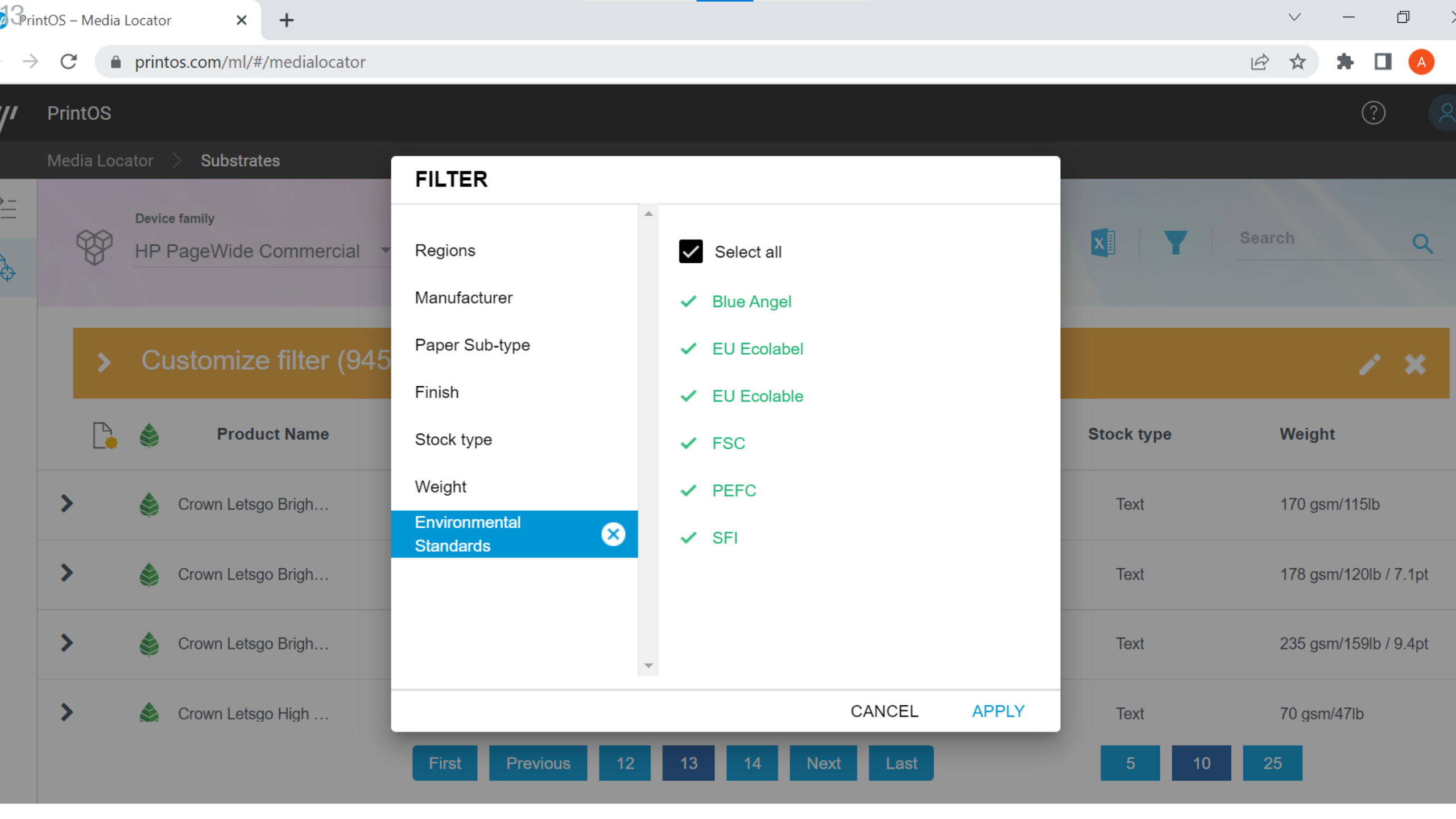
Influence industry partners to inspire forest positive action



Create print technologies for efficient paper consumption



*HP PageWide & HP Indigo
Use of HP media locator to source responsible paper sources*



Device family
HP PageWide Commercial

> Customize filter (945)

Product Name

- > Crown Letsgo Brigh...
- > Crown Letsgo Brigh...
- > Crown Letsgo Brigh...
- > Crown Letsgo High ...

FILTER

Regions	<input checked="" type="checkbox"/> Select all
Manufacturer	<input checked="" type="checkbox"/> Blue Angel
Paper Sub-type	<input checked="" type="checkbox"/> EU Ecolabel
Finish	<input checked="" type="checkbox"/> EU Ecolable
Stock type	<input checked="" type="checkbox"/> FSC
Weight	<input checked="" type="checkbox"/> PEFC
Environmental Standards	<input checked="" type="checkbox"/> SFI

CANCEL APPLY

Search

Stock type	Weight
Text	170 gsm/115lb
Text	178 gsm/120lb / 7.1pt
Text	235 gsm/159lb / 9.4pt
Text	70 gsm/47lb

Paper: Sustainable choices for PageWide Web Presses

HP PageWide Web Presses can print on most categories of paper.

Compatible with a range of FSC-certified and ColorPRO papers

HP's ColorPRO paper program: the most comprehensive in the industry, working in every region where paper is produced

Dedicated environmental stewardship program for all paper used in HP PageWide Web Presses

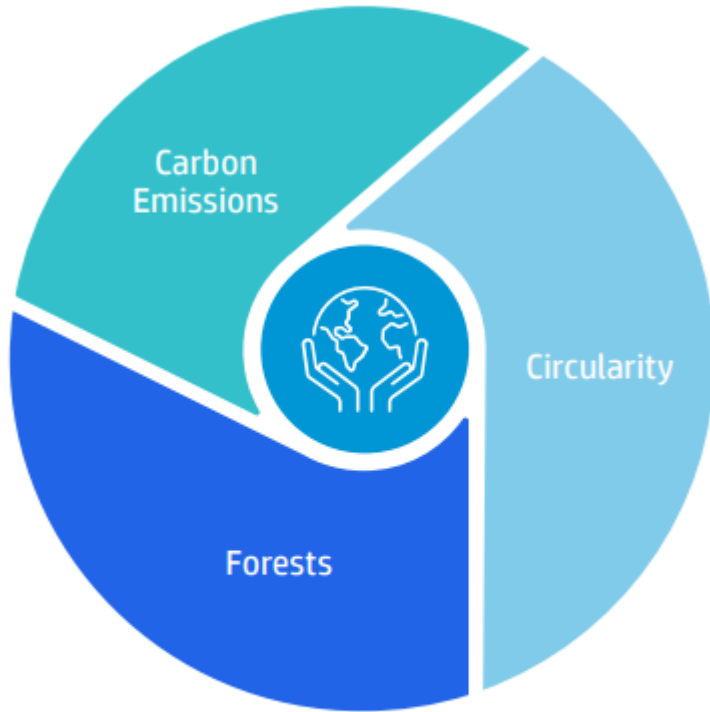
Media expertise: engineers, chemists, chemical engineers: Full analytical labs for testing paper down to the molecular level

COLORPRO
TECHNOLOGY



OUR STRATEGIC GOALS

Circularity



PLANET
Climate Action



By 2030
75% product and packaging circularity by weight by 2030²

By 2025
Zero waste operations by 2025¹

¹ Zero waste operations: eliminate non-hazardous waste to landfill in all HP direct operations by 2025. Includes all HP owned and managed sites worldwide. Zero waste is defined by the UL or TRUE certification standard.
² Percentage of HP's total annual product and packaging content, by weight, that will come from recycled, renewable and/or reused materials, products and parts by 2030.



HP PageWide: Striving for a circular and low-carbon economy

Reinventing how our products are designed, manufactured, used, and recovered.



HP designs our water-based pigment ink and fluids to:

Meet worldwide regulatory requirements and stringent criteria related to human health and environment¹

Address a broad range of health and environmental considerations throughout the entire lifecycle of a print – from production to disposal



¹ See Environmental Attributes and Regulatory Summary document for more information

HP inks and fluids: designed and manufactured for safety and sustainability



Fluids **DO NOT** contain¹ :

- Hazardous Air Pollutants (HAPs)
- Carcinogens, mutagens, or reproductive toxicants (CMRs)
- Regulated heavy metals
- Substances of very high concern (SVHC) per EU REACH regulation
- Substances identified as “very persistent and/or very bioaccumulative (VPVB) per EU REACH
- California Proposition 65 listed chemicals at concentrations requiring labeling
- Phthalates, Bisphenol A, Halogenated Organic Compounds, Asbestos, Mineral oils



SAFE FOR OPERATORS, PRINT USERS, AND ENVIRONMENT

Emit very low VOCs²
Produce odorless prints³



SAFE FOR TRANSPORTATION

Non-flammable⁴
Non-combustible⁵: No special
handling or storage



PRINT ON RECYCLED PAPERS

Compatible with a wide range of recycled papers and
papers with forest positive certifications



DESIGNED AND MADE FOR SUSTAINABILITY

Filled in recyclable containers
Designed for clean replacement: reduces spills and waste

1. Inks and fluids do not contain these materials as intentionally added components or known contaminants
2. VOC = (Volatile Organic Compounds); VOC emissions tested via EPA method 25a. Results available on request. Consult local authorities regarding VOC regulations.
3. Per ISO certified lab test results
4. Not classified as flammable or combustible liquids under the US DOT or international transportation regulations.
5. Tested per US Environmental Protection Agency Method 1020: Flash point is >110°C.

Simple Recycling of Consumables

Printheads: recyclable

HP Planet Partners Program¹:
printheads returned to HP



Ink barrels: recyclable

200-liter ink barrels are made of #2
recyclable HDPE
HP Planet Partners Program¹ accepts
used barrels in some locations



Web Wipe Cassettes (WWCs): recyclable

Planet Partners Program¹ accepts
used WWC in some locations



Composition: polycarbonate body,
stainless steel, polyester wipe material



HP Page Wide's Vertical Integration

Means HP can provide confidence in sustainability of full solution



Faster Resolution



Prioritized Development



Harmony of Components



Confidence in Future Roadmap



One Source for Accountability



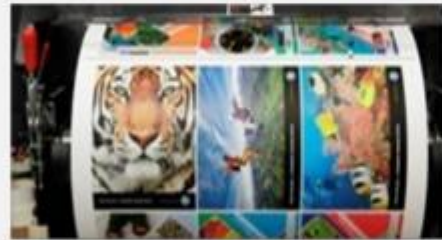
Presses



Printheads



Pigment Inks



Media Coatings



Image Processing



Print Servers



Software & Firmware



Cloud & Local Workflow



Media Transport



Dryers

Production and Fulfillment

Strategy Innovations

MAKING THE BOOKS

New challenges require new solutions



Publishing Industry Market Dynamics

Digital production was already on the rise.

Publishers are attempting to repatriate production into major US & European markets

- Demand for short-run production in US & Europe is surging.
- Domestic capacity is near full.
- PSPs and suppliers are projecting dramatically increased delivery times.

Publishers continue to pursue pre-pandemic strategies of zero and micro inventory goals

- This established the growing digital market by increasing demand for POD and short-run production.

Publishers are driving distributed print solutions

- Publishers are turning to PSPs to establish networks, secure print ready repository and file distribution solutions.
- Publishers are looking for direct relationships with POD-capable PSPs in new geographies to include in global print networks.

Publishers' New Reality

This is **not** the way we've always done it...

The anticipation that supply chain challenges are long term is driving permanent adjustments to production and fulfillment strategies.

- Materials constraints require flexibility now and streamlining for the future to ensure manufacturers' continued operations and to enable production of sufficient supply.
- Repatriation and in-market production will grow and improve.
- Digital is a first and middle, not just end-of-life, solution.
- Print Service Providers are Print Service Partners.

Digital page growth driven by innovation

New in 2021

Key Benefit

Software:

Workflow solutions for optimized production batching and management



Optimized productivity in short SLA, rapid turn environments.

Hardware:

Launch of the T250 with enhanced vision system



One single press for both coated and uncoated papers. No need for a dedicated coated press

Consumables:

Brilliant Ink + Optimizer for Offset Coated Media

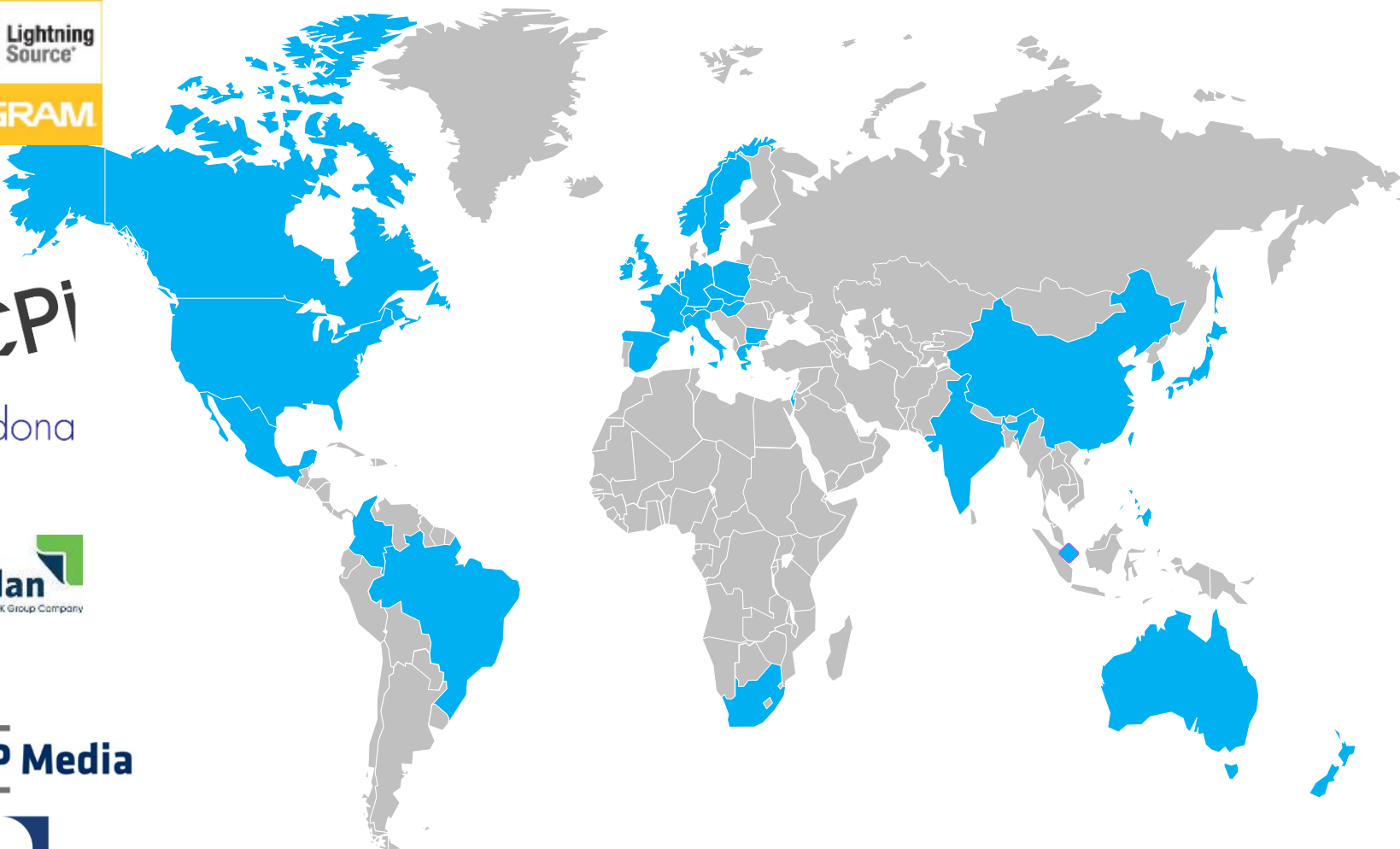


New ColorPro IJ Coated Papers



ability to print on low cost offset coated media by removing need for primer and inkjet coated media
Significantly improved performance and overall economics

HP inkjet is trusted by book printers



All over the world, from printing offset replacement to book of one

HP inkjet is supported by trusted digital book production partners

HP Platform	Finishing Partners	Bindery/Trim Partner
<p data-bbox="45 582 384 739">T400 series 1067mm</p> 	  	 
<p data-bbox="45 1110 384 1268">T250 series 558 mm</p> 	   	    

End-to-end solutions



Workflow



Finishing Solutions



Value-Added Services

- COLORPRO TECHNOLOGY Media Partners
- Graphics Solutions Services
- PrintOS
- Brand Owner & Agency (BOA) education
- HP Advantage business development
- HP Financial Services

How HP Protects Printer Investment



2010
HP PageWide T200
200 color fpm
30M pages/month

Initial Investment

UPGRADE
2x color speed

2012
HP PageWide T230
400 color fpm
50M pages/month

Upgrades: Printheads, A50 Ink, Software

2016
HP PageWide T240 HD
500 color fpm
62M pages/month

Upgrades: Print Quality, Electronics, Printheads, Software, Optional Dryers, DFE and Primer

UPGRADE
2x nozzles
+25% speed

UPGRADE
2x media versatility

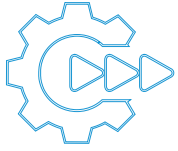
2020
HP PageWide T250 HD
500 color fpm
62M pages/month

Upgrades: Print Quality, Color Vision, Media Versatility
HP Brilliant Inks

Full investment protection: seamless upgrades to capture all new press features.

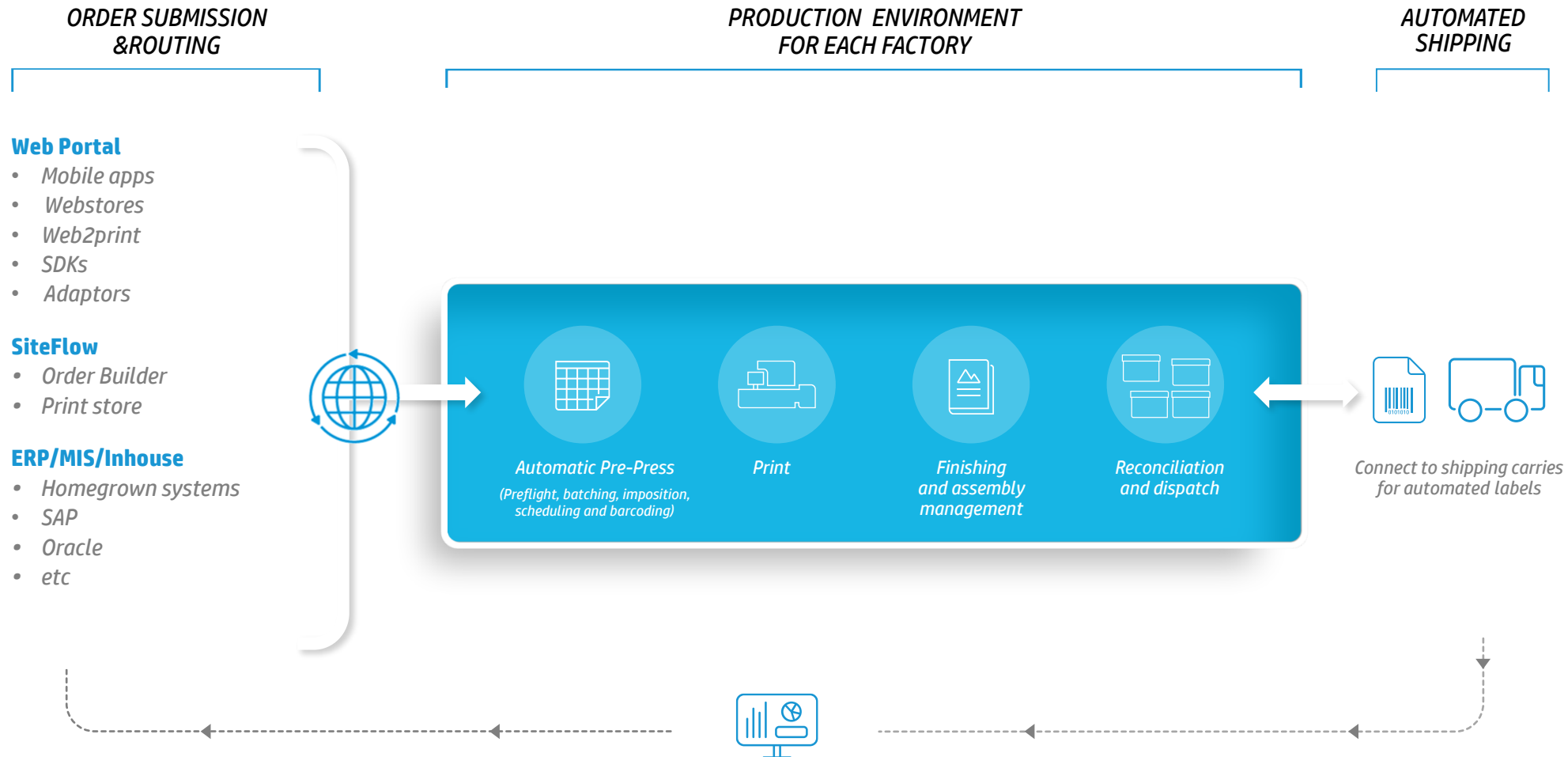
Upgrade paths for T-Series presses e.g. T400 to T480, T240 to HDNA, upgrade of finishing equipment.

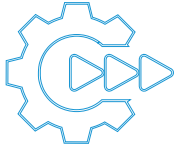




END-TO-END WORKFLOW AND PRODUCTION AUTOMATION

Streamline your business, from orders to shipment.
Automate every step of your production and your outsourced fulfillers.

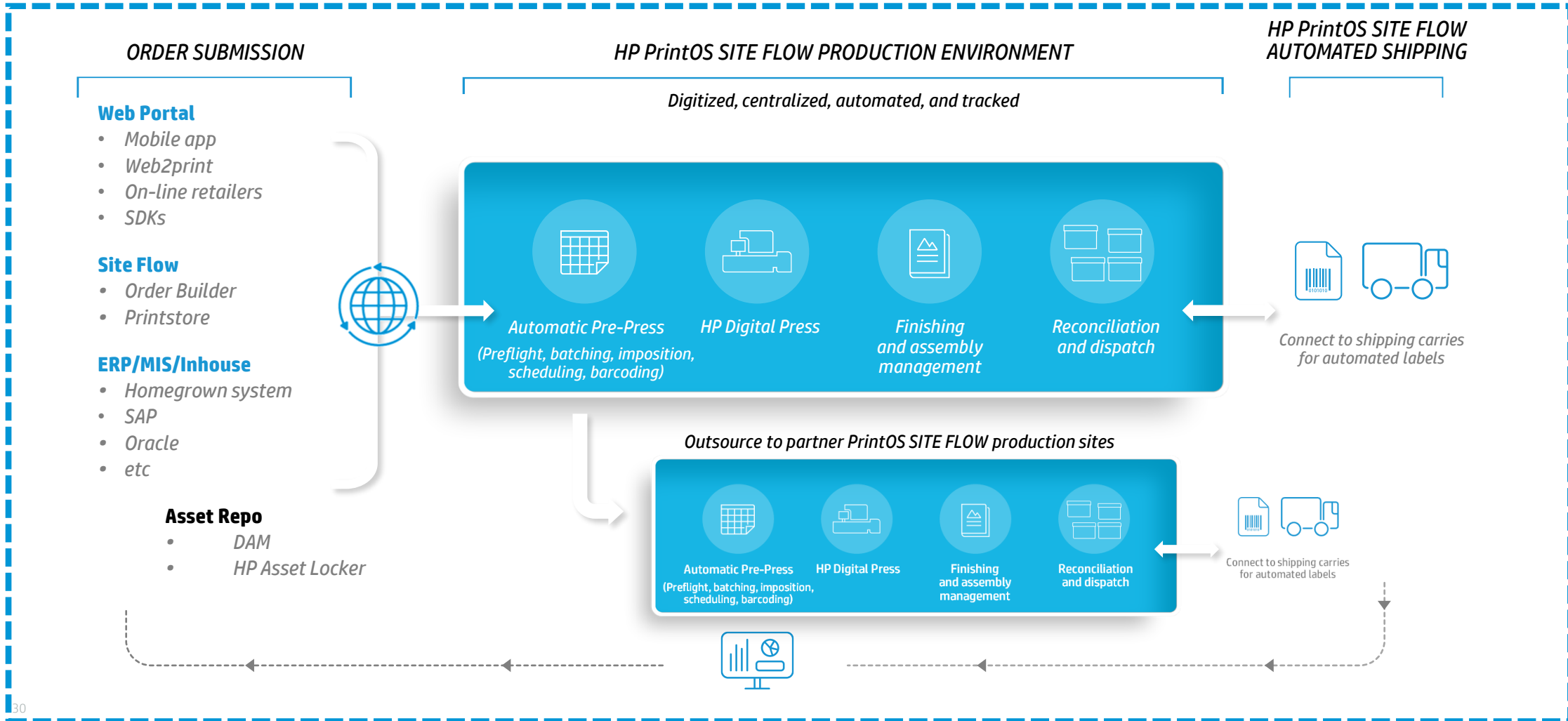




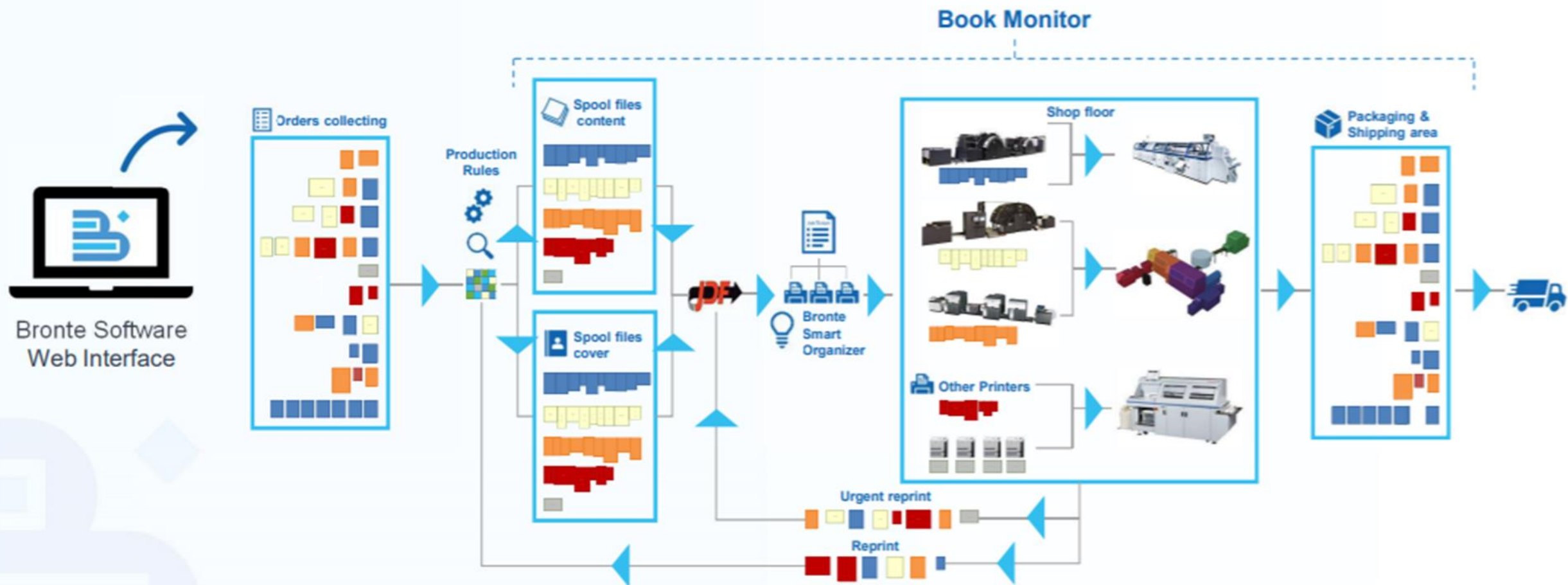
END-TO-END WORKFLOW AND PRODUCTION AUTOMATION

Streamline your business, from orders to shipment. Provide automation at every step and control your business from wherever you are.

ALL DELIVERED & MANAGED BY HP



Job management workflow: Overview



Sustainable production driven by innovation

PSP Offer

Publisher Benefit

Software

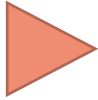
Economically viable run lengths from 1 to 10,000; Color profiles consistent across geographies



Optimized order quantity for POD and automated replenishment; Distributed print

Hardware

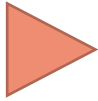
Safe investments=more presses=more capacity



Print available when and where needed; Return to shorter lead times, zero inventory, met pub dates

Consumables

Offset-quality color ink; multiple paper options available globally



Digital applications meet quality standards for more segments; Paper supply more reliable

Culture and Community

Relationship Innovations

COLLABORATING FOR SHARED SUCCESS

First generation steps lead to future generation goals



Trade Association Sustainability Initiatives



Innovation and collaboration can create new opportunities for more sustainable, economically viable publishing production and fulfillment strategies.

Distributed Print

Print providers located in multiple markets, paper supplied across geographies, and HP technology that ensures consistent print for simultaneous, distributed orders

Quality Color

Next generation ink, optimized paper for inkjet, and HP technology and finishing partners for expanded color applications

Digital First (and Always)

Print provider with order integration, flexible run lengths, offset quality ink, optimized paper

Source:

Making a Green(er) Book

The Butterfly Effect: Trim Size and Paper Optimization

Designer, Production Manager, Print Provider coordinate on most efficient trim size and paper type to reduce waste and energy consumption



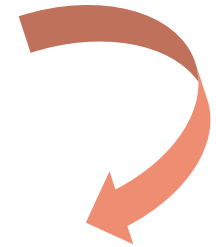
Efficient trim size and optimal PPI mean less packaging, fewer cartons, full pallets, full trucks, fewer book miles

Full and fewer cartons mean more efficient pick and pack in warehouse and in store.



Sustainability Goals Met Today and Foundation Built for Tomorrow

- Lower Energy Consumption
- Forest Conservation
- Less Paper Waste
- Reduced Carbon Footprint



Where do we go from here?

Let's make the journey together. And let the first generation begin today.

Ashley Gordon

Publishing Market Development Manager

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Thank You

