The digital on-demand

printing environmental *advantage*

Digital on-demand printing enables reductions in the environmental impact of production printing, while offering benefits to both commercial printers and publishers and their customers.

A more sustainable approach to printing

Digital on-demand printing is more flexible and often more efficient than traditional offset printing. It can offer multiple benefits to commercial printers and publishers and to their print buying customers in terms of reduction of waste and carbon footprint and cost. It can help to achieve this in multiple ways:

- **Drastically reduced printing process waste**.
- **Printing economics that allow cost effective short print runs** – Enabling 'on-demand' printing that can help to minimize overruns and cut the number of redundant prints.
- **Variable data printing** – Facilitating more customized and targeted printed material that can often require less paper to print.
- **Reduced print transportation** – Digital on-demand printing's ability to eliminate redundant prints, combined with attractive short print run economics that facilitate distributed printing closer to the point of end use, can together help to cut the carbon footprint of print transportation.

With digital on-demand printing, commercial printers and publishers can reduce environmental impact and increase profitability by reducing waste and costs in their own operations. At the same time, they can engage with their customers to develop more efficient print buying strategies and reduce their environmental impact – and potentially also their costs.

"It's not just about trees anymore; it's about the whole carbon footprint. How efficient are the machines in their production processes, how toxic are the materials they use, how much waste is generated, and is that waste recycled?"

Jim Duffy, President, Alonzo Printing, Hayward, California

Enhanced profitability through reduced waste

Digital on-demand printing eliminates several stages of the set-up and changeover processes associated with offset printing that are not only time consuming but also inherently generate high levels of substrate waste.

For example, a head-to-head comparison of an HP Indigo digital press with an offset press[2] found that in the case of a run of 500 impressions, the paper utilization efficiency of the digital press was 96%, versus only 26% for the offset press – a particularly significant figure given the industry trend towards shorter print runs[3].

Furthermore, digital printing also eliminates the use of chemistry for film and plate processing.

For many types of print jobs, these differences in the set-up, changeover, film and plate processing can offer commercial printers and publishers compelling cost advantages.

Reduced number of redundant prints

The economics of offset printing favor long print runs. This can encourage print buyers to order high quantities to get the best prices and to reduce the risk of potentially costly short-run follow-on orders in the event a few additional copies are later needed. This behavior is an important driver of why a significant proportion of printed materials are destroyed unread. For example, some 25% of all books printed are returned unsold.[4] One approach to address this problem is to print in shorter runs more closely matching the actual quantities believed required at the time of printing.

Digital on-demand printing facilitates economically viable, flexible short-run jobs. Books can be published as orders are received, and time-sensitive informational and marketing collateral can be produced only as needed – opening the way to significantly reduced impact on the environment in terms of paper waste, and therefore carbon footprint. This can lead not only to direct savings for print buyers, but also to indirect benefits in terms of reduced inventory and warehousing overheads.

Customized, targeted content

Digital printing technology also enables variable data printing, which allows commercial printers and publishers to create customized, highly targeted content and to streamline workflows. For example, directories, prospectuses or catalogs can be printed on a targeted basis with content optimized for each individual recipient. This represents a further way in which redundant pages might be eliminated, once again with benefits in terms of cutting waste.

Reduced transportation carbon footprint

A further potential environmental benefit of digital on-demand printing is a reduction in the carbon footprint of transporting printed materials. This can come not only from transporting fewer redundant prints, but also from taking advantage of the technology's facilitation of shorter runs to employ a distributed printing model – printing at several locations, closer to the point of end use. This is most relevant where copies of the material will be required at multiple sites over a wide geographical area. The ability to achieve greater localization and delivery in a more timely fashion are additional benefits.

Thus, digital on-demand printing offers the potential to cut carbon footprint, costs and complexity – often while facilitating a better service to the end users of the prints.

A partner in improving sustainability in printing

HP offers the broadest portfolio of digital printing solutions to its customers. These solutions, together with the ongoing tools and other support provided by HP, can enable commercial printers and publishers to reduce environmental impact while improving profitability.

This can be done not only by reducing waste and costs, but also by winning new environmentally conscious customers and consulting with existing customers to help them reduce environmental impact by developing more efficient print buying strategies.

1) "Greenhouse Gas Reduction Opportunity of Commercial Printing – a Model for 2020", HP, May 2009.
2) "A Comparative Study of the Environmental Aspects of Lithographic and Digital Printing Processes", Rochester Institute of Technology, 2005.
3) "The Cost of Color Print Revisited", InfoTrends Strategic Assessment, Weymouth, MA, 2008 (Report commissioned by HP).
4) Book Industry Study Group and Green Press Initiative survey of US book industry, "Environmental Trends and Climate Impacts in Book Publishing", 2008.

Progressive, Profitable Printing

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