# Large Format Printing:
A Total Solution Overview

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The large format printing (LFP) is in the start line of significant change. For years now, manufacturers have pushed drop-on-demand (DOD) technologies to their best in terms of image quality and speed.   Printers, print heads, inks and media have been improved to a point in which true photo quality prints can be produced at reasonable speeds and affordable costs. Image quality, image permanence, print durability, print handle ability, fields of application *et al*, have grown steadily as number of nozzles, dots-per-inch (DPI), drop volume, number of colors, type of inks and subtracts variety grew.

The game is changing as customer needs evolve. The original equipment manufacturers (OEM) are now in search of the next frontiers to satisfy the new customer needs. Superior image quality (IQ) will no longer be paid for in LFP mainstream applications, as current IQ suffices for long range viewing distances. Higher throughput will not be appreciated if it does not come with significant reductions on cost-per-copy. As the *printing* process becomes more and more optimized, customers have started looking at the *creation* and *finishing* stages of the value chain in their continuous quest for increased productivity and profits.

Creation   *Printing*   *Finishing*
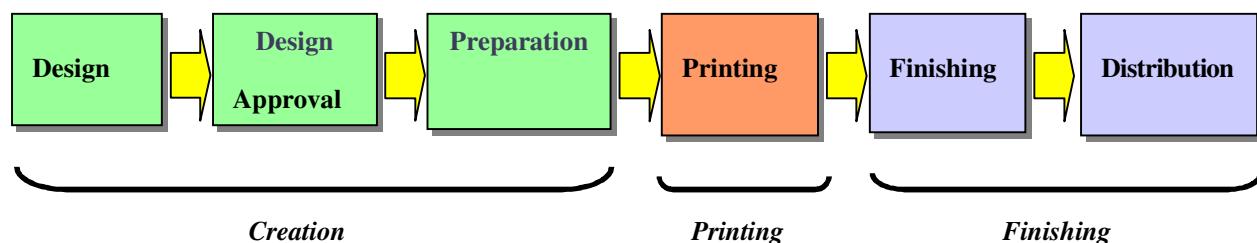
In-house (IH) customers that print for their own use (PfU) still face significant challenges in the creation phase. Managing color from image capture through image manipulation, proofing and print file creation remains a mystery for many customers. Generation of color profiles and matching of print modes to media is a crusade. Getting a true "what-you-see-is-what-you-get" (WYSIWYG) from monitor to print is a miracle.

Print service provider (PSP) customers that print for pay (PfP) are searching for productivity in the printing and finishing phases. Finishing is a labor-intensive phase that needs to get subcontracted many times, endangering profits and turn-around times. Besides, lamination and mounting equipment occupies precious real state in the shop.

Capture hardware vendors, color management companies, independent software vendors (ISV), printer OEMs, finishing equipment manufacturers (i.e. laminators) will pay increasing attention to these *pre* and *post*-print stages and will try to make their customer's life easier. The next page table summarizes how these new customer needs will be addressed by

technology and process integration.   The entire workflow will be streamlined with the creation and adoption of few standards. The different links in the value chain (creation-printing-finishing) will collapse or even disappear. Printing will happen more and more at the final user side, eliminating the need of hard copy distribution and making the true the promise of "distribute and print" instead of "print and distribute"

This DPP2003 - Large Format Track showcases various examples of how technology, process integration and workflow optimization will make printers and print users life easier.

Customer Needs, Future Solutions and Necessary Conditions

	Creation	Printing	Finishing
Customer Needs In-House	• Soft proofing (WYSIWYG) • Convenient one step scanning/printing • Predictable, easy to use, consistent color • Color conversions RGB ←→CMYK • Better "front end " software integration (OS, Applications, RIP) • Image scaling (low-res to hi-IQ LFP) without apparent IQ loss • Color consulting	• Media breath • Screen color matching • Good image quality (IQ) on any media • Ease-of-use • Unquestioned image permanence	• Print protection (handling) • Unattended finishing out-of-the-printer.
Customer Needs Print-for-Pay	• Data / file integrity (fonts, resolution, consistent format) • Print security • Fast proofing turnaround • Fast, reliable RIPing. Multi-format and Multi-printer	• Excellent color control, print after print • Low cost per print. Lower cost as more jobs are printed Remote printing control (own facilities management)	• Keep healthy margins • Reduce labor • Minimize space occupancy .
Future Solutions	• Remote proofing • Integrated large format multi-function printers (LFMFP) • Color supra-standards (ICC, sRGB, iCMYK)	• Scaling algorithms without IQ loss • Automatic generation of print modes • High IQ on uncoated media with new inexpensive inks • Internet printing through built-in web servers (LF printers become appliances). Application-less printing.	• Self-sealing media • Integrated lamination & encapsulation in printers • Print on final stock / board (already existing in Grand Format, next in LFP)
Necessary Conditions	• Creation and consolidation of color standards, print languages and file formats (i.e. ICC, iCMYK, Exif, PDF,PS,…) • Vendor consortiums (capture through creation) • End-user training on color matters	• Inks for hi-IQ on uncoated media (pigment, solvent, UV curable) • Click-charge business models	• Vendor consortiums (printing, lamination, media, inks), multi-branded solutions