

Digital Printing & Variable Data Printing

The following is an overview of the different types of digital printing available today, as well as some of the personalized and customized printing capabilities that digital equipment can produce. The first section discusses the difference between Direct Imaging Presses, or DI Printing, and Digital Color Printing. That is followed by descriptions of three types of digital printing: On-Demand, Variable Data and Web-to-Print.

Digital Printing

Digital printing is generally defined as any type of print production that utilizes electronic files to produce a printed piece. There are two types of digital printing equipment available today for printing fast, short-run print jobs: Direct Imaging Presses (DI Printing) and Digital Color Printing.

DI Printing

DI Printing is similar to conventional offset printing in that there is a plate that transfers the image to a blanket which in turn transfers the image to the paper. Where DI Printing is different is that there is no film and the plates are not made on a separate platemaker. The printing plates are imaged (developed) automatically while on the press and in register. It is a completely enclosed process, with all four printing plates processed and the job running in less than 10 minutes.

Digital Color Printing

Digital Color Printing uses either an electrophotography, Inkjet or Xerography process. These printing devices can use dry ink, toners, dyes or pigments to image the paper. Although the image quality is not as good as DI Printing, the quality from many of these printers is very close to offset printing.

With Digital Color Printing, there is no “make-ready,” which for conventional offset printing is the “hanging” of the printing plates and extensive time and material cost needed to get the color on paper to where you want it to be. Since there is no “make-ready,” and since Digital Color Printing is an electronic process similar to a color copier, you do not need to order large quantities to reduce the unit cost. Printing 10 pages takes as much set-up time as printing 1,000; therefore, there is not a significant unit cost difference.

	Digital Imaging (DI) Presses	Digital Color Printers
Imaging/Printing Method	<ul style="list-style-type: none"> • Offset printing • Can be waterless • Up to 300 line screen 	<ul style="list-style-type: none"> • Electrophotography • Inkjet • Xerography
Ink	<ul style="list-style-type: none"> • CMYK Inks 	<ul style="list-style-type: none"> • Dry-ink • Toners • Dyes • Pigments
Image/Paper Size	<ul style="list-style-type: none"> • Maximum size: (11" x 17") to (14" x 20") 	<ul style="list-style-type: none"> • Maximum size: (11" x 17") to (14" x 20")
Paper Stock	<ul style="list-style-type: none"> • Wide variety including coated, uncoated, translucent and more • Various weights 	<ul style="list-style-type: none"> • Device-specific • Coated and uncoated but limited in weights and variety
Proofs	<ul style="list-style-type: none"> • Digital inkjet 	<ul style="list-style-type: none"> • Proofs are run on the actual stock (running a proof is the same as running a print quantity of one)
Run Lengths	<ul style="list-style-type: none"> • 250 – 20,000 depending on size 	<ul style="list-style-type: none"> • 1 – 1,000 for on-demand printing • 1 – unlimited for variable-data printing
Customization	<ul style="list-style-type: none"> • Good for basic versioning 	<ul style="list-style-type: none"> • Perfect for variable data and variable image (personalized, 1:1, customized printing)

On-Demand Printing

On-Demand Printing is also called Print-on-Demand (POD) or Just-in-Time Printing. This is just what the names imply: printing what you need when you need it. Printing smaller quantities as needed allows for the content to be changed and updated often. Your print collateral and direct mail pieces can now have the most up-to-date information. Changes can be made on a daily basis so that all printings or mailings will have updated, accurate and more relevant information.

On-Demand Printing also eliminates the concern of printing large quantities and having hundreds or even thousands of outdated materials that will collect dust and need to be thrown out. With On-Demand Printing, there are no minimum quantities, and the materials can be printed and ready to ship in 24 to 48 hours in some cases—even same day in others.

Most On-Demand Printing is produced on a digital color printer. As mentioned above, today's digital presses are now capable of printing near-offset quality, without the need to make plates or having to wait for the ink to dry. This allows the piece to move to the bindery immediately, to be trimmed, folded, bound, etc. For on-demand projects that require a higher quality, DI Printing is also a viable option. Waterless DI presses have a faster drying time, allowing for very quick turnaround times.

Variable Data Printing

Variable Data Printing (VDP) is also called One-to-One Printing, Variable Image Printing, Customized Printing, Personalized Printing or other similar names. VDP is a form of On-Demand Printing which links databases of customer information with the client's design layout to create documents customized specifically for individual people. In VDP, all the documents on a print run are similar, but not identical. In other words, the basic layout is the same for all pieces, but some of the data and/or images change.

During the printing process, computer applications take content from a database and integrate it into a document according to rules that specify which elements are used and where they are placed. As a result, whether a print run is 10 prints or 10,000, VDP can make each piece different by changing the information on each print.

Today, the marketing opportunities presented by Variable Data Printing are enormous. VDP is an excellent tool for conducting targeted marketing campaigns. Companies can build powerful one-to-one marketing campaigns using relevant text and images based on information you have about your audience, such as client order history, demographics and preferences. Instead of mass-producing a document that delivers the same message to 5,000 people, you can customize the message (text and images) so that each person receives a customized and personalized message.

Marketing that is relevant to each customer dramatically increases the return on investment (ROI) because the content and offer in each message is tailored and targeted to each individual, improving the effectiveness of the message. Various reports show response rates for Variable Data Printing ranging from 5 percent to over 30 percent. A well documented study by Cap Ventures shows response rates for personalized print programs at 36 percent (see below). Not only do response rates increase when the message is personalized, but average order size, retention, overall revenue and response time also increase.

The Benefits of One-to-One Communication

Response Rates	36.0%
Average Order Size/Value of Order	24.5%
Repetitive Order/Retention	47.6%
Overall Revenue/Profit	31.6%
Response Time	33.9%

There are four different levels of content customization:

Static

Your marketing message is mass-produced using conventional print methods with every customer receiving exactly the same message.

Personalized

Each customer's name and address will be printed or lasered, but the marketing message is static and exactly the same for each customer.

Versioned/Zoned

Segmented versions of a document are created to meet the needs of different groups. Your customer base is segmented according to demographics or other attributes such as expressed interest. For example, investors could be segmented by age or long-term goals; car owners segmented by the model they own, or customers by geography. Customized content is then delivered that best addresses the needs of each particular segment.

Fully Customized

The ultimate application of direct marketing, each document's content is fully customized to be highly relevant and tailored to a specific individual. A full-color, dynamically composed document, the layout, text and images can all be varied depending on the customer.

Here are a few examples of how VDP can be used:

- A college mailed 3,500 brochures to college-bound high school students. The brochures were personalized to each student and customized with relevant information about their interests. They included an overview of programs they would be interested in, alumni interviews, faculty bios, course lists in selected major and extracurricular features. They also included a personal greeting from the student's admissions counselor (assigned based on the student's zip code). Only one photo in the piece was static; the rest were variable based on the recipient's interests. All this was integrated seamlessly into the printed piece.
- *Reason* magazine used variable data printing to personalize and customize the cover of its June 2004 issue for each of its 40,000 subscribers. Each subscriber got a cover showing a satellite photograph of their neighborhood, with their home circled. In the same issue, the editor's note was customized to the recipient, with comments addressing commuting time, educational achievement and percentage of children living with grandparents as relevant—all information culled from *Reason's* subscriber database and other sources.
- A hospital-owned medical practice of about 30 physicians printed and mailed 10,000 postcards as part of an outreach program to inactive patients. The cards were gender and age specific. For a female recipient, for example, the postcard included a photo of a woman in the patient's age group; cited the health issues for women in that age category; and included a photo of the recipient's physician, the physician's signature and the phone number of the office the patient had visited.

Web-To-Print

Online print management programs, called Web-to-Print or Web-Enabled Printing, allow print materials to be professionally designed, but then give the client—or even their customer—the ability to customize these materials to their needs. It is another way that On-Demand and Variable Data Printing are now being utilized.

Web-to-Print is a perfect application for customized, one-to-one printing that gives the client the ability to manage the print procurement process. Brochures and direct mail pieces can be professionally designed and then customization and personalization can be managed online. The client, their sales staff, or even their customers, can go online and choose photos, images, or text to insert into the static shell. With the use of this shell, the brand is never jeopardized and graphic standards can be maintained.

After choosing the customized information, and after inputting any personalization, the user will be given the opportunity to proof the final piece online before it is printed. When ready, the user clicks the submit button, which sends all the information directly to the print supplier. Within 24-48 hours, and the printed piece—a customized, personalized, one-to-one marketing piece with relevant text and images created by the client specifically for the end user—is in the mail.

Some examples of effective uses of Web-to-Print are:

- Exhibitors at The PGA Merchandise Show mailed out over 170,000 postcards urging attendees to visit their booths. The exhibitors used templates created by the PGA Golf Exhibition, customizing the cards with their own graphics and text. They then uploaded their own mailing list to the printer and the postcards were printed and mailed within 48 hours. The PGA Golf Exhibition created the program and to encourage exhibitors to participate the PGA, offered to pay for postage on all the postcards as well as some free printing. The ease of use, cost savings and self-serve model helped make this program a success for both the PGA and the individual exhibitors.
- In the Variable Data Printing example of the direct mailer to high school students, the process could be set up where students could log on to the school's website and choose what courses and activities they are interested in. After making those selections and inputting their name and address, a student could click on the submit button and within 24-48 hours, a printed brochure would be in the mail and on its way.
- A printer used Web-to-Print technology to showcase their VDP capabilities and invite customers to their open house. An e-mail was sent out with a link to a page on the printer's website, where the customer was asked to indicate their favorite color, preferred activities, and of course, name and address. Within a few days, the customer received a customized invitation packet in the mail including a personalized invitation, note pad, name tag and direction card. All the pieces were printed with the recipient's chosen color, pictures of their chosen activity, and their sales person's name, direct phone number and e-mail address.