Commercial Printing - Digital vs. Offset

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Commercial Printing - Digital vs. Offset

From the 1400's when Gutenberg invented movable type to imprint ink on paper, to today's digital printing equipment using electronics to output what we see on our computer screens - the print industry has undergone many changes. Commercial printing firms use either traditional offset or newer digital equipment to fulfill their customers needs. Digital print equipment is electronic (larger, faster versions of laser desktop printers) whereas offset printing is a mechanical process and utilizes very large equipment requiring specialized operators. Today print shops can produce work on digital equipment in much less time than on traditional offset equipment. Printing using digital equipment is almost instantaneous as opposed to the mechanical offset process which requires specialized file preparation, production of films and press plates, test runs, ink drying time and extensive manual clean up and set up. Utilizing a digital workflow, we take files from digital cameras and scanners directly into our layout and production without having to resort to expensive and time consuming preparation for offset printing equipment. As well, we can work from almost any well designed file. The growth in the use of the Portable Document Format (PDF) files has simplified moving material from one computer system to another making commercial print production quicker and easier for all concerned.

Save Money By Printing Only What You Need When You Need It

Producing only what you need when you need it is referred to as Print on Demand. The growth in the use of digital equipment spawned this concept. Generally, digital print equipment is economic in smaller volume runs whereas offset printing is more cost effective when you need large volumes. Utilizing offset printing equipment to produce your work makes economic sense only if you are producing large runs (above 3,000). However the flexibility and decreased time line that digital production enjoys can be an advantage even in larger volume runs.

Typically the unit price when utilizing digital equipment is higher than if using offset equipment. However, unit price is not the only criteria you should be concerned about. The total cost of fullfilling your printing needs is all that matters. When calculating the total cost, you need to factor in less obvious charges such as extra shipping, storage, handling, interest etc.

Examining printing costs in this way shows that buying 500 of something at $2.00 ea. for a total of $1,000.00, beats having to buy 3,000 of the same item at $1.50 ea. totaling $4,500.00 (plus hidden costs on the extra 2500 you didn't really need right now but you had to order to get a lower unit price). Dealing with firms that specialize in print on demand can result in significantly lower printing expenses.

Print On Demand concepts also allow greater customization of material, ability to more easily alter printed material to reflect changing prices and information and a host of other advantages suited to today's demanding marketplaces. We can help you take advantage of these potential cost savings and will advise when you should be considering utilizing offset equipment to produce your work if it will save you money.

What type of quality can you expect if you use newer print on demand equipment rather than traditional offset printing equipment? The ability to output work direct from electronic files has revolutionized the print industry, creating a demand for better equipment. This demand has forced equipment manufactures to provide machines and software that can handle the new workflow efficiently and reliably. In both color and black and white, the printing quality is remarkable - there is little difference today in the quality of the finished products.

PDF's What They Are and How You Can Use Them To Increase Productivity And Security

Most everyone who uses a computer today has encountered PDF files. We use Acrobat Reader to open PDF files downloaded from the Web or received as email attachments. PDF's are being used for product manuals, instruction sets and even on the help sections of much of the software we utilize.

So what is a PDF? Adobe Systems created the Portable Document Format (PDF) many years ago to facilitate packaging of files that need to be moved from one computer system to another. Since that time, the use of PDF's has exploded, particularly in the printing industry and on the web. PDF technology has become the standard for packaging files to send to print providers for output. This is an excellent reason to add the ability to generate this file format correctly, but there are many advantages to adopting PDF to move your files. Sending secure electronic files that can not be modified by the receiving party has become very important. PDF's allow you to control document and file security. Acrobat has become one of the most powerful tools you can add to your computer software package, and adopting and integrating this workflow in your business can increase productivity and improve the security of your operations. For a full overview of what you can accomplish by utilizing PDF's, visit www.adobe.com and follow the links to Acrobat.

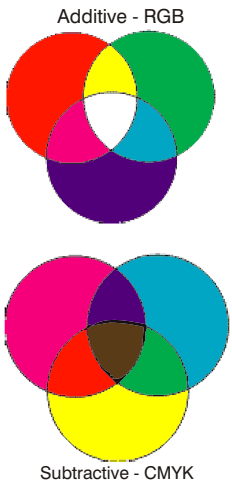
What You Don't Know About Printing CAN *Hurt You!*

The following information explains some of the factors that will affect the quality of your printed material. If you regularly participate in preparing material to be printed, you should have a basic understanding of some or all of this material - it could potentially save you and your firm much time and money. If you are not sure what to do or how best to do it when you are preparing files - please feel free to consult us at any time. Many times we are not consulted until the majority of work preparing material to be printed is already completed. This often ends up with unsatisfactory results or even the need to completely rework the files to obtain the desired result - both of which can delay the project and add unnecessary cost.

As much of what we deal with today involves "Colour" printing (which we will refer to as full colour or 4 colour process) as opposed to "grayscale" printing (which involves only black ink or toner), you should have a basic understanding of what "colour" means in the printing industry.

As we've outlined, commercial printing was a strictly mechanical process until the advent of computers. People that set up the work to be printed were referred to as typesetters and the people that ran the equipment that applied the ink to paper were referred to as pressmen. These are highly technical trades and require many years of training and hands on experience to become proficient and be able to turn out top quality work. "Full" or "4 colour process" output, involves splitting the image to be printed into it's composite colour parts and printing each of these parts as a separate process. The composite parts for printing purposes consist of the ink colours Cyan, Magenta, Black and Yellow (CMYK). Four colour process printing requires each of these ink colours to be applied as a separate operation one on top of the other - when this process is complete, most colours can be reproduced.

Understanding Colour Theory



Monitors, TV's, Digital Cameras and the Internet work in what is called RGB colour. RGB means Red Green Blue and represents what is called an ADDITIVE MIXTURE of coloured LIGHT. This typically means that the light is being projected through the medium used to produce the colours we see. There are a few particulars about this type of colour that we need to understand. When Red, Yellow & Blue are combined, the result is White and where any 2 of the colours overlap, the result is Cyan, Magenta or Yellow.

The CMYK system used in printing is described as SUBTRACTIVE color. When Cyan, Magenta and Yellow are combined, the result is Brownish-Black. (That's why a true Black is added to the palette, making it a 4-color process). Where any 2 of the colors overlap, the result is Red, Yellow or Blue. This is also referred to as a reflective light system as quite simply the light reflects from the colour applied rather than shining through it.

Why This Matters

1. Your files must be saved as RGB for the web and CMYK for printing. If you design a printed piece with RGB images and colors (remember that photographs from digital cameras & scanned images will be RGB), they will have to be converted to CMYK before being printed. The results may be rather awful, as there isn't an exact correspondence between the two color systems. We rely on software to perform this function so have no direct control on the results.

2. RGB files are smaller in size than CMYK files of the same image. This is important for web design, as you want to keep file sizes as small as possible to decrease load times. Images prepared for the web are designed as low resolution (typically under 100 dpi) whereas images used for printing need to be higher resolution (above 300 dpi). You will generally not get acceptable results when utilizing images from the web in printing work.

3. The exact colour you see on your monitor is not going to be the same on all output devices (digital printer or web). You must proof all of your output before making final colour decisions. It is quite complicated to try to calibrate the colours you "see" on a monitor as

many factors come into play (not the least of which is ambient light and the fact that we all "see" colours differently). The only reliable method of ensuring that the final printed work is acceptable is to proof the output carefully. Adding further complications, monitors and print equipment have different colour gamuts - the range of colours they can reproduce - so what you see on your screen may not be what will be produced when printing.

How 4 Colours Become All Colours

As outlined, in offset printing FOUR-COLOUR images are made from combined screens of each of the 4 PROCESS (CMYK) colours. Offset printing can be a single colour, or combinations of two or more. Each colour requires a separate film to be shot and plate made for the press. The film will embed the images and text to be printed as they currently exist in the layout. Each colour application requires a separate run of the stock through the press. The press needs to be cleaned and re-inked between each run and a new plate mounted - when all four runs are finished you will have full colour output. If you want a high gloss finish, another run through the press will be needed to add a clear varnish to the finished work.

Why this Matters:
Let's say we print a set of business cards with Ann White's name on them. A few months after these cards are printed you need another set with Bob Black's name. This will require new files to be designed and new film and a new press run, as it is now a new job. With digital equipment, we change the file on the computer and are printing within minutes.

Digital equipment allows us to produce "full colour" printing without using offset presses. Now we send the file to the printer with no mechanical intervention and let the computer and the printer figure out how to apply the toner or ink. This saves a tremendous amount of time and labour and has made full colour printing a much more accessible product. In the past, it made very little economic sense to produce small runs of full colour printing due to the time (cost) it took to set up and run jobs. Today, smaller runs are becoming the norm. You can precisely control your print costs and also have much better response time to changes in printed information by utilizing commercial digital equipment.

PAPERS: Glossy vs. Matte, Thick vs. Thin

Papers come with different FINISHES, which can generally be divided into glossy (shiny) and matte. They also come in different thicknesses or weights, and can have a texture to them, as well. A business card, for example, may be printed on a 90# cover stock, while letterhead might use a 60# text stock.

Glossy paper stocks are often used for brochures, report covers, sell sheets and anything where the brightness of the colored images is important. A matte stock can soften or darken the color. When using digital laser equipment, the toner sits on top of the paper which results in a glossier appearance. This reduces the need for high gloss stocks - generally we can utilize less costly stocks for digital laser output and still obtain good results. We do try to avoid folds across the toner so that it does not crack. Thicker stocks are generally used for applications where folding is not involved or mailing weights will not be a factor. We can advise you on all of the factors that will influence your decision on what types of stocks to use for your job.

DESIGN: Bleed vs. Non-Bleed

BLEED: The term "bleed" is used in printing to indicate that the printed image extends to the edge of the page leaving no "white" border. This can be accomplished in a couple of different ways - one is to print on an oversize sheet and then trim to get the page size you require, the other is to print on a standard size sheet and then trim the borders off creating a slightly smaller finished piece. You cannot print right to the edge of any sheet as all printing equipment grips the sheet near the edges to feed it and cannot print in the grip areas. Bleeds are well loved by graphic designers and can add a more refined look to the work. Be warned however that bleeds complicate (add expense) to the printing and finishing required and should be well thought out. Unless you fully understand the use of bleeds and how to lay out your work so that it will work on the equipment you are going to utilize to print and finish it, you are best to avoid using them.

NON-BLEED: The document is designed LARGER than the image, so the image is inside the edges of the page. This is how most work is designed and normally presents little problem - however do not crowd the edges as not all print equipment will leave the same border. To be safe we recommend setting up 1/2" or larger borders.

Different Types of Files and Software

It is extremely important to understand the different types of electronic files that we utilize on our computers. Graphic design and the print industry utilize what is called Vector files almost exclusively. When we draw or create an image on the computer, it is defined mathematically and is referred to as a vector file. A digital photograph or scanned image is not a vector file and this type of file (referred to as a bitmap file) is defined by breaking the image into thousands or millions of tiny dots (pixels) and storing the information about each of these dots. The easiest way to understand the difference between the two file formats is to imagine an old

grainy newpaper photo where you could actually see the individual dots - this is a bitmap file and the jagged edges you will see on an image that is too low resolution when printed or viewed close up is called pixelation. Computer generated vector files do not consist of these dots and have nice smooth edges when viewed or printed.

Why this matters
In order to scale images properly and have printed work turn out with as high a quality as possible, graphic designers must be very particular about utilizing files that will produce the expected results. Vector files have many advantages not least of which is the ability to take them apart into their component pieces on the computer and change colours, shapes, text and other important elements. Bitmap images are basically a picture and are much harder to modify. In order to create suitable files for printing or even web imagery, designers use specialized software. Often files that are created by individuals or businesses that are not primarily involved in graphic design work will utilize software such as Microsoft Word or other word processing or spreadsheet programs that was not designed to produce commercial printing output. Although we often can obtain satisfactory results using these types of files, it requires careful planning and close work with your print provider. Once again - close communication with your printer early in the process will increase your chances of ending up with acceptable results with the least amount of problems.

What is Self-Publishing?

Self-publishing is one of the fastest growing segments of the publishing industry. Many authors are turning to self-publishing as a method of generating revenue and also having more control of the publishing process and their own work. The publishing industry has been forced to work to the same minimum run concept as the rest of the print industry until the recent advent of digital equipment. As a result of the high initial cost to print a book, publishing companies financed and took responsibility for editing, typesetting, production, marketing and distribution of the book, paying the author a small fee per unit for creating the work. This meant that only a small portion of the books that have been written over the years have actually made it to print and many authors have actually lost control of their work to publishers.

Self-publishing means that the author takes responsibility for these functions. Along with the benefits comes the costs, however utilizing digital equipment, this cost is much less than it has been in the past. Today most books can be published for a total expense in the hundreds of dollars instead of tens of thousands or more. The hidden benefit in self-publishing is that the author retains complete control of the work. As well no book ever need be out of print. and first time authors can actually get their work into “print” and have a much greater opportunity of generating revenue from their efforts.

Profit is not always the primary reason to write a book. Books are often written to expand your own interests or to meet the needs of an organization, a business, or your family. Traditional publishing companies are primarily interested in books that appeal to the mass market and will usually not commit to publishing work intended for limited markets.

Reasons to Self-Publish
1. Time Self Publishing cuts the time line necessary to move a book from concept to reality shortening time lines from years to months.
2. Control You have complete control of the process and the content and, most importantly, you retain this control in the future.
3. Profit Many of the authors that self publish actually make money on each and every book they sell. This is somewhat of a novel concept in the publishing business where the standing joke is the “starving” authors.
4. Possession As a self published author you own all of the rights to your work. In traditional publishing, the author does not own the rights, the publisher does. If your publisher decides not to promote your work either now or in the future, you will not be able to print more of your books unless you purchase these rights back.
5. Test Marketing You can easily test market by self publishing without exposing yourself to large expenses. This may give you a track record to approach an established publisher with, increasing your chance of “selling” the work.
6. Small Markets Many books will only appeal to a small market. These include local or regional topics, historical books on particular areas, technical topics etc. These types of books are generally produced by local authors. Commercial publishers are generally not interested in handling these types of books (or if they are, the resulting book will be tremendously expensive) due to their limited appeal.
7. Creating a record Often people wish to create a record of a certain event, period of time, family or personal history or many other special happenings. On demand printing loans itself to producing these types of works.

For a closer look at publishing your own book please see our Guide to Printing Your Own Book

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