



PRINTtips



Graphics
Printing
Mailing
Under One Roof

TechneGraphics, Inc.
Park 50 TechneCenter
2002 Ford Circle
Milford, OH 45150
(513) 248-2121
Fax (513) 248-5141

Web site:
www.techgra.com

File Transfer site:
www.tgidirect.net

FTP site:
<ftp.techgra.com>

Email:
info@techgra.com



Do It Yourself Printing... Pluses and Pitfalls

Once upon a time, printing equipment was big, noisy, dirty, expensive, hard to operate, and therefore impractical for most businesses to own. When copies of documents were needed, they were made using carbon paper or mimeograph and ditto machines.

Things began to change in 1959 with the introduction of the first plain paper copier – the Xerox 914 – and continued with the invention of laser printers, color copiers, and desktop publishing systems. Today's modern office couldn't operate efficiently without its desktop laser printers and copy machines.

So does all this internal printing capability mean that it is faster, better, or cheaper to “do it yourself” rather than having a commercial printer do the work? Or are there some overlooked costs and other issues that should be considered? In this issue of Printtips we'll explore these topics.

Monochrome copiers and digital printers

Monochrome copiers and digital printers print in black ink only. Until the 1990s, most copiers were *analog* meaning the imaging process used a camera-like method. Today copier imaging uses laser technology and copies are made directly from files. If only hard copy is available as an original, the copier first scans the document to create a file, then prints from the scanned image. Most copier manufacturers refer to their digital products as *digital printers* rather than copiers.

Most office copiers are either *Segment 1* or *Segment 2* machines, where the segment indicates the



copier speed and recommended monthly copy volume. Segment 1 machines print at a speed of 13 and 20 copies per minute and a recommended monthly copy volume of 10,000 to 12,000 copies. Segment 2 machines print at a speed of 21-30 copies per minute and have a recommended monthly copy volume of 25,000 to 30,000 copies.

The copiers we use in our printing company are termed *production copiers* and have much higher speeds and monthly copier volume.

What this means is that we can get a job done much faster on our production copier than you can on your office copier. This isn't important if only a few copies are needed, but becomes increasingly important as the run length increases. Also, our machines include automatic duplexing

Do It Yourself Printing...Pluses and Pitfalls (continued)

“...our color copiers are laser printers rather than inkjet”

(i.e., printing on both sides of a sheet of paper), have large capacity paper drawers for unprinted paper and usually include bindery options such as stapling or booklet making. This makes our equipment more efficient and less reliant on human labor.

Color copiers

Today's affordable color copiers are based on inkjet technology, which has made amazing improvements in the quality of copies, the printing speed and the kind of paper that can be used since they were first introduced.

But did you know that our color copiers are laser printers rather than inkjet? In our production environment, we need greater speed, the ability to print on a wider range of substrates (i.e., types of paper), and higher quality than is possible with inkjet copiers

We also need lower operating costs. An inkjet cartridge contains not only ink, but also a disposable inkjet head. What this means is that an inkjet cartridge has a relatively high-cost component that is not part of a bulk toner system like we use in our color copiers.

Cost of ownership

The cost of ownership of any copier includes not only the original purchase price, but also the supplies (such as paper and toner or ink cartridges, developer, fuser oil), the cost of materials or parts that must be periodically replaced, and the cost of a service contract if offered. All these costs can be computed and expressed as a *cost per copy*.

Copier manufacturers will, if asked, provide the cost per copy of these direct costs of ownership. But remember two things usually left out of the cost per copy: the cost of electricity to power the machine as well as additional air conditioning costs (because copiers throw off a lot of heat). This is a direct cost that might be insignificant for a small copier and low monthly copy volume, but

could be measurable as the copier gets larger and the monthly copier volume increases.

The other direct cost that can be deceiving is the cost of toner or inkjet ink. The life of a toner or inkjet cartridge is expressed as an estimate of copies per cartridge. However, actual yield is determined by the amount of image coverage on each copy. The manufacturer's estimate is usually based on about 20% image coverage – mostly type and limited graphics. Introduce areas of heavy solids or photographs, and yield will drop dramatically, significantly increasing the cost per copy of toner or inkjet ink.

Life of a copier

The life of a copier is measured in the number of copies, not the length of the payment contract. Here is where the recommended monthly copy volume becomes important. If your monthly copier volume regularly exceeds the manufacturer's recommended volume, then you will be “using up” your copier faster – perhaps so fast that it will begin to show signs of age (more frequent need for service calls, poor copy quality) before the term of the lease or service contract is complete.

Why we may be a more cost effective choice

There are several reasons why, even if you own a good office copier, we may still be a cost effective choice.

- Our equipment is designed for production work – fast copying speed, high monthly capacity, and a wide range of substrates that can be fed through the machine.
- We have service contracts on our machines, so we keep them in excellent operating condition. We don't skip service because the budget is tight.
- Poor copy quality is never an issue. If the copier isn't producing high quality

“There are several reasons why we may still be a cost effective choice.”

Do It Yourself Printing...Pluses and Pitfalls (continued)

copies, we call for service and fix the problem.

- Our workers are trained to operate the equipment efficiently, to meet quality standards, and to meet the deadline.
- We buy paper at wholesale prices.

All this adds up to our having lower operating costs for our equipment. So even though our prices contain a profit component, our lower

operating costs allow us to produce copies at or near your true cost of ownership.

One more thing. If you are investigating the acquisition of a copier, we invite you to use our knowledge to help you evaluate the cost of ownership. Our goal – besides keeping you as a customer – is to help you make an informed decision that is the right one for your business or organization.

“Our goal is to help you make an informed decision...”

RGB & CMYK Colors May Not Look the Same

Perhaps you have had the disappointment of having the color on your printed piece look somewhat different than it did on your computer monitor. There is a scientific reason for this – the RGB (red, green and blue) phosphors that create color on the computer monitor are capable of producing many more colors than the three process printing inks (cyan, magenta and yellow or CMY). And the process printing inks, when combined, cannot always match exactly the single hue of a PMS spot color.

To put it more simply – there is not a perfect overlap in the range of colors that are both visible to the human eye, reproducible with RGB additive color, and reproducible with CMYK

subtractive color. Whereas the human eye can see billions of colors, RGB can reproduce 16 million and CMYK printing 5-6 thousand. So some colors will convert from RGB to CMYK fairly well (because the color is in the CMYK) and others will convert poorly (when the RGB is outside the CMYK color gamut).

To illustrate, try this exercise. Using PageMaker, Quark XPress, InDesign, or PhotoShop, convert RGB blue to CMYK. Watch what happens to the color. Does it turn to purple? Now reduce the percentage of magenta by 50% and watch it turn back to blue. This is a dramatic example of how additive and subtractive color spaces are not perfectly overlapped.



“...there is not a perfect overlap in the range of colors”

Spot Color Printing



“If your budget doesn’t allow for full color printing...”

We live in a world of color. Color improves reader comprehension, calls attention to important information, and improves the overall appearance of any document. If your budget doesn’t allow for full color printing, you can still get the benefits of color by using a PMS color as an accent with black ink text.

You can even create the illusion of more than one color when using a single PMS color. By

creating a *tint* or *screen* – a block of small dots – behind a section of text, the reader will see a lighter shade of the PMS color. And for some PMS colors, the tint may appear to be a different color altogether (a 20% screen of burgundy, for example, may appear as pink).

For more ideas on how to use color in your documents, call us at 513-248-2121, and we will be happy to assist you.



“... we can choose the process that best meets the production requirements...”

Q. *If your production color copier is so good, why do you use an offset press?*

A. Good question! Call us print snobs if you like, but the real reason is that after a certain number of copies, it is less expensive and faster to use an offset press instead of a color copier. Another bonus is that the resolution on an offset press is higher

than a copier – an important consideration if the image being printed includes photographs, fine line detail, graduated screens, or other elements affected by resolution.

Even though we don’t always report it to you, it is our practice to look at alternate ways your job can be produced so we can choose the process that best meets the production requirements – due date, quantity, and image quality. Some jobs clearly belong on a copier (such as 100 full color copies needed within 24 hours) while others clearly belong on a press (2000 2-color brochures). But for those that could be produced by either method, we look at both so we can present you with the best option.