Welcome to our first issue of ColorManagement.com News. We are excited to bring you the latest information from the Color Management world. This issue is a little long as things have been piling up for a while. We will try to keep it shorter in the future. Please let us know how you like our efforts and feel free to contribute events, requests or comments. We feel we are a unique group, over 35 of the premier consultants in the world and are anxious to share our knowledge with you. Best Regards, Lida Jalali Marschke, Publisher and Gerry Yaeger, Editor.

January Product Announcements

1 - Gretag Macbeth Eye-One Ruler Upgrade Kits with soft carrying case Part #42.15.84
are starting to ship. The price is $100.00 until March 31, 2006.

gretagmacbeth

2 - All Eye-One Pro solutions now include:
• NEW accelerated Eye-One Pro, delivering twice the speed and improved ease of use for concise consistent measurements every time!
• NEW highly sophisticated ruler system enabling easy one hand scanning operation, usable with or without new backup board.
• NEW Backup board with white surface, scanning up to 3mm and foldable for easy transport.
• NEW softcase which accommodated all components of Eye-One including new ruler and backup board.

3 - Gretag Macbeth SpectroEye Promotion
GretagMacbeth would like to start your new year off right, beginning immediately, all SpectroEye orders will be shipped with the promotional items that were included in 2005, at no additional cost. Order a SpectroEye (Standard or UVcut) and it will now automatically include:
• FREE! Access to the Pantone guide in the SpectroEye after instrument registration on gretagmacbeth.com.
• FREE! KeyWizard Software
• FREE! USB – Serial adapter (KeySpan) to connect the SpectroEye to the USB port.
Simply order the SpectroEye with standard part numbers and we'll automatically ship with the 3 additional items.

4 - EFI extends their upgrades.
The XF Cross grade Promotion has been extended to January 31, 2006. This is the feature match upgrade for customers already using BEST Colorproof 4.63 or 5.01

and/or Screenproof for $900.00. On February 1, 2006 this price will be $1200.00

Other EFI Promotions:
• Premium to latest Color Manager Option-> $325.00
• Premium Suite to latest Color Manager + Color Verifier Option -> $650.00
• Remoteproof to the latest version of Color Verifier Option -> $325.00
• The 2.5 to 2.6 upgrade is now $250.00

5 - Pantone ColorVantage Inks Promotion - 20% off all ColorVantage Products:
http://www.colormanagement.com/store/CID17/PID631

6 - Eizo Macworld special price: ColorEdge 19" Black w/Hood - Significant savings off list + Free shipping.
http://www.colormanagement.com/store/CID24/PID475

7 - ColorBurst will be releasing two new versions in January. X-Photo and X-Proof version 4.1 which will include SpectralVision 2.0.

ColorBurst®

SpectralVision 2.0 is based on Monaco Profiler and will create 4 color output profiles with full control over black curve, UCR/GCR, total ink limit, and black intensity. Version 4.1 will be a free upgrade to all X-Photo and X-Proof users. On the PC side ColorBurst will be releasing version 7.5J which will also include SpectralVision 2.0 with the expanded functionality of 6 and 8 color profile on supported printers. Version 7.5J will also debut ColorBurst support for the Mimaki series of printers and will contain expanded functionality for the screen printing industry.

Technology Update - ColorCast
Steve Upton, Chromix,
ColorManagement.com Premier Consultant

CHROMiX announced ColorCast in September, a new color simulation and modeling technology used with ICC color profiles. ColorCast technology alters ICC profiles by embedding color transformations into normal ICC device profiles. The result is a profile that is usable with any ICC compatible system but contains complex proofing or modeling transformations. Photoshop, the CS2 suite, Quark and Freehand don't support Hexachrome® or other multi-

CHROM:X

color printing systems directly. End-users with the need to soft and hard-proof multicolor workflows are faced with the additional expense and confusion of plugins which aren't available for many of the professional publishing or desktop applications people use.

ColorCast technology is remarkable because, while there is considerable color wizardry going on under the hood, the resulting profile is still a regular ICC-compatible print, scan, or monitor profile. As a result, soft and hard proofing of multi-color and abstract profiles is now available in ANY application, print driver or RIP that supports ICC profiles. Multicolor printing is expanding every year and has seen significant inroads in the packaging industry. One challenge faced by printers is comunicating the advantages of multicolor printing to their clients and allowing them to simulate final expected results. ColorCast profiles can be created to capture the effect of a complex multicolor printing system (up to 10 channels) within a client's working space or printer profile. The client can use the profile in a wide variety of applications to simulate final color.

Rendering intent choices select the simulated profile's intents, allowing full flexibility. The technology can also be applied to input and working space profiles. A digital camera profile could be combined with effect or utility profiles increasing contrast or modeling a film type. Working space profiles can combine with abstract profiles to inherit their abilities and still remain standard profiles supported in Photoshop. ColorCast technology appears in the Color-Think Pro application which is now shipping and may appear in other applications in the future.

Premier Consultant News

There are now 35 technicians in the Premier Consultant group: http://www.colormanagement.com/directory

New Member
Dveer Kassoria of ColorTek in Israel is our newest international member. We met Dveer at the GATF Color Management Conference in Phoenix last December at our booth. To learn more about him check out the directory.

Consultant Spotlight

Dan Gillespie owns ColorGeek, Inc., a color consulting and training business which he runs from Lancaster, PA where he has lived for almost 20 years. The company provides high-end technical training and installations of color related products for the graphic arts and printing industries on a national level.

Dan became involved with digital color workflows in the late 80's working as a scanner operator and production artist at a local newspaper.

In 1994 Dan accepted a position at a national graphics arts reseller as an application/color specialist and technical trainer. During the time he worked for the national graphic arts reseller he was developing curriculums for new training courses, evaluating products, and developing vendor relations, as well as performing approximately 250 installations and trainings nationwide on color related products.

In the year 2000 Dan started his own business as an independent consultant. "With CTP now a reality it was evident to me that everyone moving to CTP would also be moving to digital proofing and you need color management to do digital proofing." comments Dan on his decision regarding starting his own business. And so it was that ColorGeek was born. He has spent all of his waking moments this millennium developing ColorGeek, Inc. and ColorGeek.com and has become one of the industries most trusted and highly regarded color consultants. Dan has done work for a clients list that reads like a who's who of the printing and publishing industries. He has already worked with over 150 companies in just 4 years setting up digital proofing systems and color management workflows and has done over 100 installs of Best ColorProof and ScreenProof alone. Dan makes it okay to be a "Geek".

Webinars

We are conducting a series of webinars in conjunction with the IPA featuring Color Management in applications including: Photoshop, In Design, Quark Xpress and PDF. This series is presented by Chris Murphy, ColorManagement.com Premier Consultant

This first program in the exclusive 4-part webinar series will be the PREMIER session for this unique "Color Management in Graphic Applications Software" curriculum.

Adobe's common color architecture will be explained in detail including why we can never really turn off our color management system. Adobe's color settings will be fully explained as to their significance in working spaces, the specific settings themselves, and instructions for deciding which of the sRGB, Adobe RGB (1998), and/or ProPhoto RGB spaces we should be using. Also, understand why some experts recommend one working space setting versus another.

We'll also discuss how to avoid sabotaging our files (or our customer's files) and when to embed accurate profiles

into each of our images. We'll discuss both soft and hard proofing, and how to avoid "DOUBLE" color management in the print driver. This will also include understanding how to best represent the image on our monitors while learning how best to print an acceptable proof on our local inkjet printer. Lastly, we'll provide some insight as to how we can stay sane in the color management world despite customer and client griping and frustrations.

Training and Certification Update
Lida Jalali Marschke, Color Management.com

ColorManagement.com provides a business entity for strategic partners, vendors, national accounts and customers to do business with the best color management consultants in the world - all of which are listed as premier level consultants on the ColorManagement.com website. To uphold this reputation and maintain our technical edge takes a lot of hard work and much dedication.

Every year we get together preceding the GATF Color Management Conference for 2-3 days for technology updates, training, and certification classes provided by our vendors. We do this at this time because most of our members teach courses and conduct sessions at the GATF conference and need to be in Arizona anyway. This past December we met December 2-5 and the schedule was packed from 7 am until late every evening.

Highlights included AbsoluteProof, ProofPass.com and Onyx certification, and ColorBurst and CGS training. Pantone, X-Rite, Eizo and Canon provided product updates. The theme of this year's meeting was packaging. One of our members, Howard Simpson of Arizona State University, provided the group with a packaging technologies class which I believe everyone thought was spectacular! In addition, Schawk provided two sessions for our meeting - an overview of technical issues pertaining to packaging and an informal packaging Q&A. GretagMacbeth presented all of their new packaging based solutions.

EFI, Tekgraf, and the IPA sponsored a party for the group and a good time was had by all. During the party Steve Upton demonstrated Chromix ColorThink Pro, their newly released and greatly anticipated product. Chromix generously donated a copy for a drawing which David Piccus of Piccus 4 Color has won. All in all the meeting was a huge success - although, I am told that I am not allowed to start sessions at 7 am anymore for this group!

Standards & Association News
Lida Jalali Marschke, ColorManagement.com

Last year we joined several industry associations including IDEAlliance. One of the reasons we joined this group is to get involved with the new GRACoL 7 specification which breaks tradition by focusing on colorimetric data for grey balance and a standardiized "Neutral Print Density Curve" rather on traditional TVI aims for each ink.

Members Steve Upton, Ron Ellis, Neil Barstow, Jim Rich, Son Do, Abay Sharma and Lida Jalali Marschke have helped Larry Warter rewrite section 7.8 on Color Management which is a part of the GRACoL specification. In November, ColorManagment.com hosted a webinar for the GRACoL committe titled GRACoL 7 Step by Step. We recorded the session so if you did not get a chance to participate and want to to watch it you can go to the members only section of the website and select the GRACoL session link: http://www.colormanagement.com/members_only&session=20060113183230U58.

At the end of the month the first of our members will be getting GRACoL 7 certified. The new GRACoL 7 Experts Program for consultants and trainers is designed to identify those consultants and trainers who are expert in the new GRACoL press calibration process and are authorized to provide training and consulting services for GRACoL. Professionals certified through this program will be authorized to use the GRACoL trademark on their websites and in their marketing materials and training programs.

These individuals will also be granted license to use IDEAlliance GRACoL training materials as a basis for their own GRACoL 7 consulting and training offerings. Additionally, GRACoL Certified Experts will be uniquely authorized to read and verify the measurements on press sheets being submitted by printers for the new IDEAlliance Master Printer Program.

Manufacturer Spotlight
Expanding Branded Inkjet Ink Options
Andy Hatkoff, Pantone®, Inc.

Since 1963 Pantone has been a pioneering force in the development of color communication and specification tools and technologies. Today our globally adopted PANTONE® Color Systems touch everything you see – from corporate logos and product branding to the latest colors on fashion runways. Drawing on our expertise in color science, we've recently developed the PANTONE® ColorVANTAGE™ inkjet ink system – a line of premium inkjet products designed for applications where the most accurate color reproduction and the widest range of colors are required.

Printer confusables are a multi-billion dollar market. Printer manufacturers are very aggressive about protecting well-

established holds on the inkjet ink market. They employ a similar strategy to cell phone and razor blade companies – charging a low price for the initial equipment, and then reaping large profit margins from the consumer's ongoing appetite for replenishment of ink and paper. It's interesting to note that a vast 74 percent of industry giant Hewlett Packard's operating revenue in 2003 came from its Imaging and Printing Group, according to CBS Marketwatch.

The growth of the market can be credited in large part to a recent surge in the popularity of digital cameras and the printing of digital photos at home. Also, while not as significant as that of the consumer/home markets, there have been dramatic increases in revenue from the print-for-pay markets (those who make their living doing high-quality printing for fine art, professional photography, signage and proofing) that primarily use wide-format printers and related printer consumables. Analyst firm IT Strategies reports that revenues in the wide-format market (including ink and media) will grow from $6 billion in 2003 to more than $9 billion by 2008 with each printer consuming, on average, $22,000 per year of ink and media.

Given all this, it's easy to understand why printer manufacturers try to convince consumers that the OEM inkjet inks are the only viable ink option, making it difficult for non-OEM ink providers to enter the market. This includes scare tactics about print head problems, poor print quality, and the implication that the use of non-OEM inks will void warranties. Therefore, consumers have been somewhat reluctant to opt for inks that don't carry the assurance of a trusted brand – something that printer manufacturers have also been quick to point out. The research firm IDC agrees, suggesting people typically gravitate toward a branded consumable.

Over the past 40 years, Pantone® has established the trust of the marketplace as a leading provider of color communication tools and technology. Pantone's name is synonymous with color. We are singularly focused on understanding the science of color; helping people reliably use color in design, production, manufacturing, communication and art. We're leveraging this expertise to push the boundaries of color fidelity in the professional inkjet printing market.

The goal with ColorVANTAGE™ is not to provide a "knock-off" ink set, but rather to provide a higher-value product by serving the market's need for professional-level color reproduction with inkjet printing systems. ColorVANTAGE™ inks are pigmented and marry the wide gamut typically associated with dye-based inks with the light fastness and print longevity of pigmented inks. ColorVANTAGE™ has a much larger color gamut than OEM inks, resulting in richer, deeper, more saturated hues that provide vibrant, true-to-life color reproduction. In addition, Pantone® provides ICC profiles for a wide variety of papers ranging from photographic papers to fine art substrates which offer customers flexibility so they aren't restricted to using manufacturers' papers and media.

Inkjet consumables have been priced at a premium, placing users at a disadvantage. Consumers always lose when there is a lack of choices in the marketplace, and printer vendors have been holding consumers hostage for long enough. As printing technology moves downstream from professionals to consumers, the number of users who will benefit from better color at affordable prices will continue to grow. Today, PANTONE® ColorVANTAGE™ inks are available for EPSON Stylus Photo and EPSON Stylus Pro wide-format printers, and we will continue to add support for additional printers over time.

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Upcoming Events

SNAP, GRACoL, AND SWOP
Best Practices in Printing
San Francisco (Jan. 18), Sacramento (Jan. 19 & 20)
Presented by ColorManagement.com Premier Consultants
Clark Omholt of Spectraflow & Terry Wyse of Wyse Consul

In recent years the printing industry has made substantial gains in the area of process control and printing to industry standards. New technologies and methodologies offer printers the promise of improved quality, reduced make ready, better proof-to-press matching, greater customer satisfaction, and increased profitability.

This hands-on seminar will review the role of process control and color measurement instruments in both prepress and the pressroom. In addition, the latest developments in press optimization embodied in the upcoming GRACoL 7 specification for commercial printing will be presented. No matter what size your printing company, you and your employees will benefit from attending this seminar.

Spots for this class are available on a first-come first-served basis. For more information or to sign up, contact Jim Frey at PINC, (415) 489-7608 or jfrey@pinc.org to ensure your spot. Be sure to specify the date you plan to attend. Box lunch will be provided.

Case Study - Rods and Cones

For over 9 years, Rods and Cones, Inc. has been providing complete digital workflow solutions to the Graphics Arts, Prepress, and Print markets. During that time, they have leveraged numerous technologies from multiple sources. As advocates for their clients, RC applies numerous in-house tests and real-world scenarios to all the products that they recommend. These are the same products that their field technicians use everyday onsite.

In December of 2004, Rods and Cones was one of the first consulting firms to acquire and use the new DTP70 from X-Rite. The speed, ease of use, and versatility of the

DTP70 has fundamentally changed and improved many established workflow procedures. In fact, the DTP70 is so popular among staff, that Rods and Cones has outfitted all field techs with the device.

The X-Rite DTP 70 has many tangible benefits:

• Speed. Compared to the competition, the DTP70 was easily 3-4 times faster. ECI charts are processed in under 4 minutes compared with 15 minutes for other leading spectro-photometers. When processing one chart or multiple charts, the times savings quickly added up.

• Versatility. With a built-in UV filter that was switchable, technicians and end users had one device that addressed the composition of different substrates that sometimes contained optical brighteners.

• Ease of use. Compared to strip readers and other XY devices, the DTP70 gracefully accepts targets up to A3 in size. This allows better use of space on an often crowded press form. In addition, the paper feed transport is fairly straightforward and smooth. With built-in skew correction and target alignment detection, readings are consistent and repeatable.

What the technicians have to say:

"Ever since I got my DTP70, color management installations have gone much smoother. The ability to quickly measure targets has allowed me to spend more time optimizing profiles for each particular clients needs. This customization was often difficult or even impossible to do within the clients time constraints and budgetary considerations. Now I can provide value-added services without impacting the bottom line. This makes our offerings more competitive and gives us happier clients! -- Son Do, Field Technician

"The DTP70 has been a lifesaver. My wife no longer calls in the late evenings wondering when I will get home. Not only is my work that much more enjoyable, but I feel I am now delivering a better product. I can now focus on the results rather than the process."--David E Troutt, Field Technician

What Rods and Cones clients have to say:

"We run two large format proofers almost continually throughout the day. With that much usage, our calibration routines have to be efficient and fast. The DTP70 does an admirable job. In addition, when profiling our presses,

it was able to handle all of our substrates from adhesive backed papers, to poly film, to plastic. We highly recommend it over all other solutions!"
    --David Squibb, Prepress Manager, Label Technologies

"We're used to discerning clients. In fact, we pride ourselves on the fact that we are able to rise to any challenge. The DTP70 has enabled us to better meet our clients demands for fast, reliable color. We have used it in conjunction with Monaco Profiler to profile every output device in our shop including our Lambda, Creo Spectrums, Kodak Approvals, and numerous inkjets. With so many devices and so many proofing substrates, we were hampered by the speed of our previous spectrophotometers. The DTP70 has saved us time and money and ensures that we deliver a quality product."
    --Leslie Ungar, President, Schawk SF

"When we installed our first inkjet proofer many years, ago, it quickly became apparent that they were no where near as stable as the analog film proofs that we were used to making. Regular calibration and profiling was necessary to keep us on track. Our operators however, had little time to address this issue as often we would like. However, with the upgrade from an X-Rite DTP41 to a DTP70 and Monaco Profiler Gold, we are now able to get a much better handle on our proofers and printing press. In fact, we like it so much, we are installing it our sister locations as well."
  --Mel Blair, Operations Manager, Lockheed Martin

New Product - AbsoluteProof® ExtraChrome® Orange and Green Ink

Absolute Proof® developed the Extrachrome® ink set to fulfill a need in the high end printing and packaging sector. It is obvious when looking at the supermarket shelves that many of the colors commonly used in packaging are outside the color capabilities of a standard ink Jet printer.

As Ink Jet printers are progressively becoming the standard for contract proofing in the printing industry, they are handicapped when it comes to proofing jobs which use these more saturated and metallic colors. This is the reason why AbsoluteProof® developed this new ink. The ExtraChrome® inks in combination with an Epson Printer and AbsoluteProof® enable Pantone® matching of a standard not seen before on Ink Jet printers. Even the most saturated colors such as Pantone® 021, 151, Reflex Blue and even metallic colors that have been impossible to proof in the past can now be proofed reliably on an affordable ink Jet printer.

Product Update: AbsoluteProof®

David Piccus, Piccus 4 Color
ColorManagement.com Premier Consultant

AbsoluteProof® fits nicely into a niche that works well with packaging and printing firms that would like to print spot colors, hexachrome or multicolor profiles out to the AbsoluteProof® Extrachrome® ink set that includes Orange and Green ink replacing the light magenta and light cyan inks.

It is also an affordable 1-bit input and output platform, printing sharp halftone images without any reprocessing of the 1-bit data. AbsoluteProof's dots replicate the precise dot shape and screen angles used in the original 1-bit files.

AbsoluteProof® runs on MacOS X, has good color reproduction and 1-bit output, as well as an easy to use interface. Once you start feeding it images, it keeps up with the printer, continuing to rip the files while printing the previous images.

The linearization is simple and uses spectral readings from Gretag Measure Tool. It will also use X-Rite's ColorTool to import spectral readings from their devices within this quarter. After the linearization is created, simple source and destination profiles are used to create the color match.

There are currently no nesting or cropping tools in the rip, but as it is primarily a 1-bit rip, the files are already laid out for the printer. You can rotate images, but that is not recommended for the 1-bits as it adds to the ripping overhead.

I will be doing tech support for the group and have found it to be relatively bulletproof. I have sent it multiple 1-bits, pdfs, tiffs, ps, etc. and it chugged away with no errors during my testing. The color looks very close to the press sheets I targeted with both Monaco and Gretag profiles.

The ability to simulate above 90% of the pantone library with their Extrachrome® inkset on the Epson printers seems to be a very attractive feature for the packaging market. We recently sent metallic simulation samples out to all the consultants that went through the certification training. If you did not get a chance to see these samples at Print '05 or the GATF conference, give us a call

You can drive multiple printers with no additional licensing fees, so the cost for a dot proofer going to several Epsons is much less what the other rips charge for these features. You can also produce remote, color correct proofs with no additional software dongles, just an iMac or mini Mac and a proofer at the remote site.

The files are ripped and color corrected at the parent site and the ripped files are ftp'ed to the remote proofer. This keeps the color control at the parent site and the remote sites print with confidence that the color they see will be the color they will get on the final printed product.

All in all, I have received excellent instruction and technical support from AbsoluteProof USA and Gimle, the developer. We will be providing our own support for this product-through Color Management.com. It does not seem to need much support after it is installed, being simple and Mac based in design.

The package comes bundled with Colormetrix ProofPass, which give us a control on the stability of the proofs being produced with a web based process controller built into the product. Just print the control strip on every proof, scan with an Eyeone or Pulse and post to the web and you can monitor the variations from the proof standard with no additional software to purchase.

I feel that this is a strong product to add to our mix and recommend that packaging and printing clients take a serious look at AbsoluteProof®.

Implementing Color Management

David Zwang, Zwang & Company
ColorManagement.com Premier Consultant.

The advantages of implementing color management in print production workflows have been well documented in this, as well as many other industry publications for quite a while. However, there is a big gap between understanding the benefits and successfully implementing color managed workflows.

One of the most misunderstood issues leading up to the implementation of color management workflows is the perception that it is all or nothing. Some even feel that if you don't move right away to RGB image workflows you have somewhat failed the Color Management implementation test. All of this couldn't be further from the truth. And, while you could just dive in and do it all, Color Management workflow implementations can be very successful in a staged implementation too.

Before you dive into implementing color managed workflows, we first need to cover some basics. There seems to be some conflict in identifying what Color Management really is. A perfect example of this would be to look at some Trendwatch Graphic Arts® surveys for both print, and design & publishing.

According to the results of those surveys 67% of printers and 35% of the designers and publishers use Color Management. However it really depends on what 'you' define as Color Management. For example, if you break down the printers 67% usage figure you see that the term "using color management" can mean using densitometers, calibrating viewing screens, and even "eyeballing jobs

compared to originals". In the case of the designers and publishers, they too classify calibration of monitors and "eyeballing jobs compared to originals" as essential tools of Color Management (approximately 50% of those who "use color management"). But is that 'Color Management'?

Now in all fairness to the respondents of these surveys, prior to the first meeting of the ICC (International Color Consortium) in 1993, these production measures in fact were the tools used to manage color in print production workflows (except maybe for calibrating monitors). However, with three recently released version of the ICC specification (v4.0), and lots of new supporting software and hardware tools, there are better ways to achieve a much more accurate reproduction with a lot less cost and effort. The ICC deveoped standard Color Managed workflow does this by characterizing (also known as profiling) your devices (input, display, and output) so that when a file is processed through a color management system, you can precisely map color across different devices with potentially different characteristics like color space, density, hue, etc., and get the same measured color results.

Now, if we were to look that those same respondents to see how many are using ICC based color management workflows, the numbers would be significantly lower. Probably somewhere around 20% – 30% at best, and in most of those cases the implementation is not complete throughout the entire process from design and capture to final print, it just covers a 'monitor characterization', or perhaps matching a display to a printer.

So if you find yourself in a similar position, what can you do to begin, or perhaps even to extend your implementation of an ICC based color managed workflow? The first thing to understand is that Color Management is really just a form of process control. It's really all about identifying, understanding, managing and controlling your color production workflow.

That having been said, the first step is to sit down with all of the process partners in your production workflow. Minimally that would include the key players in the prepress/ premedia areas and pressroom in your company, and in some cases that may also include key customers and their respective designer production partners. While involving your customers may not be necessary, or even advisable in some cases in the beginning of an implementation process, it will undoubtedly be something you will need to do after you get control of your internal color management process. Another important factor is that to be successful, it is important to have 'buy in' from each of these process partners. You will want to discuss the responsibilities of each of the parties, goals, and the implementation plan.

Your next step is to pick out the necessary tools for characterizing and calibrating your devices. These would include a colorimeter for the monitor, a spectrophotometer for the proof and print output. These measurement devices are available from a number of manufacturers including Xrite and GretagMacbeth to mention just a few. In some cases the functionality of these two different devices can be combined into one single device. A few examples of this are the GretagMacbeth Spectrolino, the GretagMacbeth eye-One, and the Xrite Pulse. In addition, with respect to the spectrophotometer, you will want to consider the alternatives of a single read device vs. an automated or semi- automated device. This decision should really be based on the amount of output devices you have to manage. Automated or semi-automated devices can

save a lot of operator time during the profiling process. If you are going to profile the complete selection of devices including input (scanners and digital cameras), display, and output, you may want to start with the input devices first. Although, while it will undoubtedly be to your benefit to profile these input devices, alternatively some people use their monitor profile (since they are capturing in Photoshop or some other visual working environment) as the input profile. Although this isn't the recommended way. Ideally you are better off using a standard or defacto standard profile like Adobe RGB. However, the reality is that if you profile your input device, you will probably spend less time doing objective based color corrections. The reason I mention 'objective', in this case as opposed to 'subjective' based color correction is that many people aren't happy with a true color to color reproduction (objective) from their original and may require some creative intervention (subjective).

Profiling an input device may require some pre-thought. For example if you are profiling a scanner you may want to consider that the standard profiling targets are available in many different configurations. Those include both film and print base and emulsion types (i.e.: Kodak, vs. Fuji, vs. Agfa, and Ektachrome, Kodkchrome, etc.). In addition, since the resultant profile is somewhat affected by the individual colors used in the targets themselves, there are a number of specialty targets that have been developed to address a variety of issues not addressed by the standard IT8 targets. These specialty targets can address everything from better control of differing flesh tones, to better handling of high or low key originals, etc. The proposed benefits of these non standard targets are that they may require less correction of both objective and perhaps even some subjective areas. These targets, both IT8 and specialty, in both reflective and transparent versions are specially manufactured and can be costly (from as little as about $100 to as much as $800 or more). So it is important that you both select and handle them with care.

The input device profiling process itself requires that you scan or shoot the target and then let the computer read it in through the specific profiling application software to measure against the predefined values to write the profile. Depending on the profiling software, in addition to the resultant profile, you may also get a report of what the results were. This type of tool can be good if you are looking for a new input device and want to test and compare its capabilities.

The next device you will want to profile is your display. While it had been more difficult to profile LCD devices in the past (since you wouldn't want to put a suction cup which had been historically used for CRTs on an LCD display), there are now solutions for both CRT and LCD displays. This is usually a fairly easy process of loading some software, and placing the measuring device on a predefined space on the display. After that the measuring device reads the colors that are sent to the display and compared to the predefined values in the software and writing a profile.

The last profiling step is for the output devices. These would include both proofers and presses if applicable. In this case there is a target file that is printed to the output device with color management controls turned off. Then the resultant output is measured with a spectrophotometer through the profiling software against the predefined values. As in the case of the input device profiling there are a number of available targets that you can use that may address any number of issues beyond those addressed in the standard IT8 target.

When profiling output devices it is important to choose, in advance, the specific ink and media that you will use as your company standards for proofing. You can always change them later, but it will require that you re-profile the device. This becomes more of an issue when it comes to profiling a press, since paper choice is an expectation of printing. Some of the software packages allow you to adjust/edit profiles for paper changes without reprinting and completely re-profiling the press, but the success of this capability varies fairly widely between profiling software packages. In addition you need to consider that sometimes a paper choice is made to specifically achieve the design difference that it causes when printed.

When profiling any output device it is important that you first create a baseline. This baseline takes into account a number of things, but primarily it becomes your point of calibration, or starting point. Sometimes, especially in the case of some inkjet proofers, it can also act as a way to limit ink density or create a good gray balance, but ultimately it determines a predefined zero point. This is the point from which you do your profiling.

After profiling the output devices there is usually some editing required. Each of the profiling software packages has different tools to handle this editing. Some of them do it in a fairly automated way, while most offer differing manual tools. These include many of the tools that might be familiar to a drum scanner operator, including white point, black point, curves, grey balance, wanted and unwanted color adjustment, etc.

When deciding on a profiling package the best thing to do is look at the following three things; measuring devices supported (since you want some flexibility here), editing tools (to ensure they match your demands and comfort), and any included targets (to better understand what you may need to purchase additionally). There have been some studies done to determine which of the packages can create the most accurate profile without editing, but due to differing image characteristics vs. targets, as well as regular software updates, these tests may not be the best way to compare all of these software packages at any point in time.

While many believe that profiling is all that is necessary to implement a color managed workflow, the reality is that your work has just begun, and in many cases this profiling process is the easier of the required steps. Having the profiles are undoubtedly the first step, but now you need to both set up your production applications and potentially involve any outside process partners in some of those decisions, depending on your specific role in the process.

In setting up the applications to handle the color managed workflow and potentially process the profiles against the images, there are a few things you should also be aware of. First of all, like all application settings, if you have multiple workstations the ability to keep the settings in line are directly proportional to the number of workstations you have to manage. The good news is that there are a number of other solutions that can ease some of the burden of ensuring a color managed output. These include ICC aware RIPs, workflow servers, and even Color Managed hot folder solutions. Increasingly these types of solutions are becoming available from many different solution providers. portant to begin by selecting the device you want to target your other devices to. This could be something as simple as SWOP, but if you are looking for a much closer match to final press output it would be the press (or pressroom) itself.

Many people have concerns about profiling a pressroom with many presses (especially considering they may all print differently due to their individual condition). However, there are two things to be aware of. In many, if not most cases, while the presses are different, the ink hue sets that are run in the pressroom are the same, which would make it possible to work with a common profile and in extreme conditions adjust for dot gain during the platemaking process. In addition, the chances are that you are currently using a single analog or digital proofing system, one with the fairly generic SWOP characteristics to create proofs for all of your equipment today. So realistically profiling your actual press inks would be an improvement from where you are today anyway. However, before you decide to create a 'pressroom' profile, ensure that all the presses are running the same ink hue set.

Color Management can go beyond just addressing process colors. In the case of spot color choices, ensure that the colors selected are evaluated against the corresponding press and paper profile. In fact, one of the real benefits of a color managed workflow is that you can not only achieve a better Pantone match, you can specify non Pantone colors using a spectrophotometer and reading any swatch. If you are working with hexachrome, many of the newer profiling software packages do support this type of image processing if you work in an RGB image workflow. So, now with color management you are able to start with a scan or digital camera capture and maximize the reproduction with hexachrome.

Once you have completed these initial steps it is to your, and your client's benefit to share, at least, the pressroom profiles. This will ensure that if they do their own image capture, color correction, and proofing, that their decisions and expectations will better reflect the output from your presses. If they are not familiar with color managed workflows you can even offer, or suggest to them, some services in assisting them in the implementation.

Some other very important issues in a successful color management implementation cover the issues I first discussed. These fall into the older or more prevalent understanding of what color management is. In a pressroom it includes things like proper press maintenance, density and dot control, ink and water balance, using good materials, etc.. In a prepress and design area, it includes machine calibration and purchasing quality materials just to mention a few. In all cases it includes regular and open communication.

The benefits of a color management workflow implementation go well beyond just achieving a closer match from design expectation through press output. There have been studies as well as many successful implementations that show the cost and time savings are significant. According to a study by Gistics Research released in 1999, in a print production workflow, the ROI of a color managed workflow in a design facility is over 26 times over a 3 year period. Other more anecdotal advantages include reduced proof cycles, faster press makereadies, and higher customer satisfaction.

If all of this still seems too complex but you still want to take advantage of the many opportunities that Color Managed workflows can bring to the table, you can select from the many independent consultants that specialize in Color Management workflow implementation. In addition, many of the vendors of proofing equipment and other print production supplies have services that can both assist you, or do it for you. However, the implementation of a color managed workflow really isn't something you want to bypass, it is increasingly a very important part of a print and non print publishing workflow.