stable • *adj.* 1 not likely to give way or overturn; firmly fixed.
• *n.* 3 an establishment producing particular types of people or things.

From the Concise Oxford English Dictionary

Dear Reader,

Kodak was a formidable industry player even before Monday January 31. Then came the announcement that the Rochester based giant had agreed with Creo to acquire the latter. If the deal goes through, and there is little to suggest it won't, the resulting mega-corporation will be the biggest and the broadest in the graphic arts on the planet. It has been less than two years since Eastman Kodak announced their intention to "get back" in the professional graphic arts saddle again. Within a year it had brought Encad, Scitex Versamark and Nexpress into the fold, and it was clear Kodak meant business. With Creo in the stable as well, and a new organisation of its Graphic Communications Group in the pipeline, the emerging Kodak will be able to take advantage of the economics of scale to bring this innovation hungry market pretty much anything it needs. Of course, before Monday January 31, Creo looked less like a formidable player and more like a fort under siege. In this issue, Laurel Brunner takes a look at the battle that's raged around Creo and evaluates the prospects now that it has been saved from the dissidents' onslaught and is set to become part of the most powerful graphic arts supplier in the world.

Meanwhile, in other quarters, things are less cosy and rosy, as the World Association of Newspapers and Ifra fail to reach an agreement to join forces. Well, of course, we don't really know what's happened, the press release was the shortest we've seen in a long time, stating simply that the two organisations "have ceased talks about a potential merger." Of course, as two membership based organisations, unlike Creo, they have no money hungry shareholders to force them into action.

Enjoy the read!

Cheers from the Spindrift crew,

Laurel, Cecilia, Paul and Todd

In This Issue

A New Day Dawning

"Before Kodak arrived on a golden charger, an intoxicating brew of money, personal greed, power and impatience for a return on their investment motivated the dissidents. At bottom their actions were all about Machiavellian manoeuvring for money and power, but more crimplene cut-offs than Italian chic. Now that Kodak has entered the fray, matters are taking on a different, rather more shimmering hue. It's hard to really respect the Goodwood/Burton pantomimics, but this whole business did bring to light several issues that merit more than close attention." Laurel Brunner takes a look at issues past and present in the on-going saga of saving Creo...

Mean & Lean Machines

Not so long ago, LCD screens were still a bit of a joke for anyone with serious intentions in the area of colour management. That's all changed. Says Paul Lindström, who has tested six LCDs: "LCD monitors have a lot going for them: they take up little space on the desktop, they don't radiate much of a magnetic field, they are crystal sharp, and they have high luminance (brightness) with a larger colour gamut than even the best CRTs. In fact the latest generation LCDs are so successful that most monitor vendors, including Barco, have stopped manufacturing CRTs." Read his comprehensive test...

Regular Columns

News Focus

Creo Board Keen for Kodak

Creo has entered into an agreement to be acquired by Kodak. Creo's beleaguered board has approved the proposal whereby Kodak acquires all issued outstanding common shares for a cash price of $16.50, or $980 million in total.

The announcement comes as the Special Committee appointed last summer to conduct a strategic review of the company's operations, concludes its investigations. The committee was set up to evaluate all of Creo's business interests and activities, with a view to recommendations for the company's future. In October this activity was made public in response to criticisms of Creo's board made by a group of dissident shareholders. This group had lobbied for wholesale replacement of the current Creo board, and the appointment of a new board lead by one of its members.

Now the shareholders meeting is rescheduled to take place on the 29th of March, at which meeting shareholders will respond to the Kodak proposal for acquisition, although there is likely to be no argument. The dissidents have publicly endorsed the proposal, which gives them a very substantial return on their investments. See story on page 7.

Eastman Kodak Company's Graphic Communications Group (GCG) has also announced plans to create a new organisation in order to present a single face to the market. To be planned and implemented once Kodak's acquisition of Kodak Polychrome Graphics (KPG) is final, the new organisational structure will consist of two operating units, a regional infrastructure and integrated sales and service organisations across Kodak's complete Graphic Communications Group solutions portfolio.

The new organisation will have two operating units, Graphic Solutions and Services and Transaction & Industrial Solutions:

• Graphic Solutions & Services will include three product groups and will be led by Jeff Jacobson, currently CEO of KPG, who will become the Chief Operating Officer of GCG, and President of the Graphic Solutions & Services business. The product groups are:

Digital Solutions – Kodak's electrophotographic (EP) portfolio, its wide-format inkjet portfolio, workflow solutions, professional service, publishing services, inkjet proofing and storage.

Prepress Solutions – this will include printing plates, film, proofing, flexo plates and supplies, approval equipment and computer-to-plate equipment.

Global Services and Solutions – this will include Kodak's integrated service force, as well as providing outsourced service for third-party equipment.

• Transaction & Industrial Solutions will be led by Nachum "Homi" Shamir, currently CEO of Kodak Versamark and Vice President, Eastman Kodak Company. Shamir will become President of Transaction and Industrial Solutions, which will consist of Kodak's line of high-speed, high-volume continuous inkjet technology as well as Kodak's document scanning technology and business process services business.

Fuji Snaffles Sericol

Fuji has announced that it has acquired Sericol, a UK based ink manufacturer and leading market share holder. Sericol produces inks for screen printing and wide format digital inkjet printers. It is a global corporation with interests in development, manufacturing and sale of inks for screen and packaging printing. It has the leading market share position worldwide.

Fuji is paying Ł123 million for the company, which will become a wholly owned Fuji subsidiary, to be known as Fujifilm Sericol Limited. This acquisition will allow Fuji to expand its business base into a new form of consumables supply, digital printing inks and materials, a neat complement to its existing plate and proofing materials. Sericol has grown dramatically in recent years and it is

likely that its work and that of Fuji will yield considerable synergies in the development of photopolymer CTP plates and materials technologies that raise their sensitivity.

Fuji will continue to expand its business through acquisitions, and has a consolidated sales target of JY300 billion in the year 2008.

Adobe Shovelling It In

Adobe has beaten previous records for quarterly and annual revenues, with an amazing $429.5 million pouring into their coffers in the last quarter of 2004. Most of it came from corporates and retail uptake of the Creative Suite bundle and Acrobat. 2005 is expected to be just as good for Adobe, mostly on the back of Acrobat 7.0 and Creative Suite 2.0.

This 20% revenue increase yielded a net income of $113.5 million, a 36% jump over the previous period. The annual revenue figure is $1.67 billion and an annual net income of $450.4 million. And this from the same company who told us they didn't have the budget to subscribe to Spindrift! We're clearly in the wrong business!

Heidelberg UK Turns 30

Heidelberg's most successful first wholly owned subsidiary recently celebrated its 30th birthday. The UK business was the first of 250 branch offices in 170 countries around the world, employing 5400 sales and service personnel.

The occasion was celebrated at a special luncheon held at Stationers' Hall in London and attended by Bernhard Schreier, Heidelberg's CEO, plus the former and present managing directors of Heidelberg UK, Worlfgang Gorth and George Clarke. Under Mr. Clarke's cogent command Heidelberg UK has a turnover of £160 million and a staff of 427, operating from offices in London, Leeds and Tamworth.

2005 is expected to be a good year for Heidelberg, particularly in the UK where the company expects to see growth in workflow and JDF. There are over 60 Printect systems plus some 400 prepress interfaces. There are also expected to be 20 installations in the UK of the new Suprasetter by May, with "many more orders" expected.

EFI Colorproof XF Gets SWOP Certification

EFI's Best proofing solutions have become the first proofing solutions to achieve SWOP certification on both the Epson 4000 and HP130 printers. The proofing systems were tested for their ability to control colour inkjet output and produce proofs that were as close as possible to the appearance of SWOP certified press proofs. EFI Colourproof XF software drove the engines.

Getting the Print Word Out

Print Yorkshire is a UK government funded initiative to raise the profile of the printing industry in the region. Print Yorkshire offers a practical and financial package to the printing industry to assist in business improvement activity and the adoption of 'lean methods' of manufacturing, to radically improve efficiency and profitability, by eliminating waste in every area of production.

Next September, a printers' exhibition is taking place to allow printers to showcase their services to potential customers. Now there's a good idea. The organisers are also planning a seminar to run alongside the event. The venue and dates are yet to be confirmed, but interested parties should contact Print Yorkshire: Lisa Huntington on 01924 203338, or visit **www.printyorkshire.com**.

Creo Profits

As expected Creo has reported their highest quarterly revenue in the company's history. Going out with a bang or what!

Revenues grew by 12.4% to $174.6 million, with net earnings of $5.9 million. Earnings before taxes and other items were up by 64.0 percent at $7.3 million in the first quarter of 2005 versus $4.5 million in the first quarter of 2004.

Consumables revenue jumped by 109.1 percent since the first quarter of 2004, to $27.9 million this quarter. First quarter gross margin was 40.6 percent for 2005, compared to 43.0 percent in the first quarter of 2004.

And so it goes on, but if Kodak manages to complete its acquisition none of it will really matter, since Creo shares will no longer be traded. Creo and to some extent KPG will be living in limbo land until the end of March, and probably for some months following.
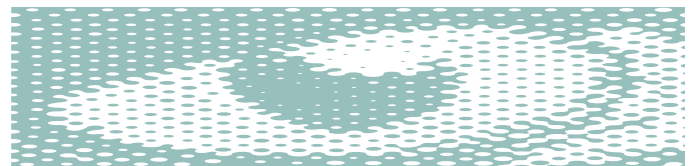
Spindocs

(Where the spinner gets spun!)

Much as we love to tease the hardworking folks in PR, sometimes it's developers who come in for the stick. Take a look at the following file which arrived at our desktop recently as an example of a JDF file. It even had a .jdf suffix. Great we thought, and having nothing better to do that lonely Saturday night, opened said file simply quivering with excited anticipation.

Imagine how rapidly disillusion and disappointment washed over us in a wave of misery, when we read this dead as dust bit of code. It looks mighty proprietary and the developers we showed this to did not recognise it as a JDF or even XML. So much for standards. By the way, Ditsy is a made up name, used here to protect the innocent.

```
%!JDF-Ditsy*-1.0
<<
        /JobName        (F2-Cde301431_verso.rep)
        /JobType 0
        /PathName ()
        /ExpPages       1
        /ExpSeps        6
        /Ticket (5779)
        <<
                /Page           1
                /Type           0
                /Plane (Cyan)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Cyan.tif) (r) file

        <<
                /Page           1
                /Type           0
                /Plane (Magenta)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Magenta.tif) (r) file

        <<
                /Page           1
                /Type           0
                /Plane (Yellow)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Yellow.tif) (r) file

        <<
                /Page           1
                /Type           0
                /Plane (Black)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Black.tif) (r) file

        <<
                /Page           1
                /Type           0
                /Plane (Decoupe)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Decoupe.tif) (r) file

        <<
                /Page           1
                /Type           0
                /Plane (Linework)
                /FileType       (Tiff)
        >>
        (F2-Cde301431 verso.rep_Linework.tif) (r) file

>>
```

Driftwood

(Useful stuff washin' in on our shores)

Taggants

As far as we, and the Oxford English Dictionary, know, there is no such word as taggants. It sounds vaguely unpleasant, but rather than involving rashes and itching, taggants could play a much more interesting role in the printing business.

A taggant is some sort of chemical marker that labels any surface with a substance that is visible when subjected to heat, light or chemicals. The idea is to add the taggant to an ink or toner mix so that an original surface is easily distinguishable from a fake. The copies, be they clothes, cars, paints, or documents, that do not have the correct chemical taggant, will be identifiable as fakes or counterfeits.

This taggant technology has a massive relevance whether we are talking about covert or overt applications. It could be used for example in materials that change colour slightly in the sun (imagine seeing your clothes take on a gentle glow), or glass with images only visible at certain angles or lighting situations, such as a brand logo, or slogans on windows.

Some of these materials work more subtly and need a special illuminant and processing algorithm. This is the sort of stuff that is of greatest interest for security and related document applications. For covert applications special sensing systems function in cooperation with the illuminant and software in order to detect the taggant.

Taggants can be pretty clever, for example simultaneously emitting and absorbing energy at different wavelengths, or showing temporal effects when subjected to pulsed energy.

What we do with it is anybody's guess, but documents and a range of print applications are natural candidates for taggants. Packaging, especially, can benefit from it for brand protection and inventory control. Security documents such as passports, currency, stamps, share certificates, identity cards and labels are all logical candidates for this technology.

Letter From... Washington DC

```
Hi Y'all,

Ah'm not exactitudinally intercommittified
with ya'll's trade, but ah sure as hell do
enjoy readin' Spindrift. My job is print
procurementalising but I'm not too sure what
that really means. They pay me anyhows.

Here in Washington DC we've been gettin'
down to business after the votulaters kindly
gave us another term. It was a criticalising
time for us and we empathisify with what
those poor folks at Creo must be goin'
through.

It's gonna be tough for that Creo board
if things don't go their way. I believe
it'll be harder for their customers and
prospectivating customers: they ain't used
to cut price kit and they ain't used to
DIY developmentifying. My friend over at
Kodak said Creo should be helping him to
spreadify freedom come summer, but I don't
think he can be correctivulous.

I pensivulate that guy called Bob Bruton
from Goodywood/Bruton, must be one tough
cookie. I hear he's a profiterolicking, cost
cutting kinda fella. He's gonna munch into
Creo like it's so much candied yams. I
could be errorising, but if he gets his
way, life in ya'll's trade could take a
pretty strange turn come summer. Course,
by then Creo may be nomenclated somethin'
else, like Crako or Crooked. Who knows?

Hang in there!

Fred M. Toscrewup
```

Say What?

(Iffy Writing Award Presented in the Ether for Obfuscation, Confusion, Misinformation or All Out Pretentiousness)

This isn't exactly so much something we've read that's confusing as something we've seen that beggars belief.

The UK has many wonderful, fat and well filled Sunday newspapers, including the Observer, arguably one of the most well respected of them all. Imagine our surprise, and probably that of many other readers, to find pages 17 to 32 in lovely OM magazine repeated. They were interesting enough, but surely not worth repeating. We contacted the Observer and it seems the extra 16 pages, printed by Quebecor in Northampton, did not appear in all copies.

Why did this happen we asked. It seems the 16 page section in question was loaded twice into the Müller Martini saddle stitcher by someone not paying enough attention. It happened despite all sections being colour coded and despite the use of a doubles detector which measures each copy to check that it isn't too fat or too thin.

Could this be yet another JDF application waiting to happen?

Boomerangs

(Your feedback fed back)

From: "David Howes" <david.howes@tera-uk.com>
To: "Laurel Brunner" <laurel@brunner.enterprise-plc.com>
Subject: Season's greetings

Worst job?

Working for the Leipzig tourist board.

David Howes
Director
Tera UK Limited
david.howes@tera-uk.com

Acrobites

(Something to get your teeth into)

NITF

News Industry Text Format, now in version 3.2, was developed by and for news publishers. It is used to provide an easy means of news sharing and includes support for non-Roman scripts including diacritics, and inline metadata. It is inevitably based on XML which defines news articles' content and structure. The metadata provides the basis for searching so this format makes a document easier to search and searches more rich. There is also the possibility of adapting content according to a target publisher's needs, since the XML tags can be parsed according to specific page or content formats. Once delivered, an NITF file can be translated into whatever format the publisher needs for web or print production.

The International Press Telecommunications Council, who developed this format, is an independent international association of leading news agencies and publishers. NITF is open, proven and widely used throughout the newspaper industry for XML news text interchange. Amongst the companies using it are Agence France Press, the international multimedia and multilingual news agency. AFP provides news feeds in NITF via satellite and the Internet in many languages around the world. ANSA, Italy's largest newswire company does the same, and so do AP Digital, the piece of the Associated Press that serves interactive markets, and DPA, the Deutsche Presse Agentur.

Less obvious users are CCI Europe whose systems use NITF based coding as part of their wire services handling and web content management, and Highridge Technologies, a software developer for content intensive electronic publishing systems.

Newspaper users include Sweden's Expressen and the New York Times.

PRISM

The Publishing Industry Metadata Specification is a set of XML metadata vocabularies for automating repetitive tasks in systems for accessing, tracking and managing content. PRISM comes with its own DTD to make it simpler to find and share material. Now in version 1.2, PRISM is an Idealliance project designed for publishers and system developers to improve content and information management. As users work with the specification, further lexicons are being developed, improving PRISM's relevance and scope.

Most widely used in the journal and magazine markets, where its biggest fans are Time and Nature, PRISM is being constantly refined. It is now being modularised in order to make it easier for Idealliance to use it as the basis for further metadata standardisation efforts.
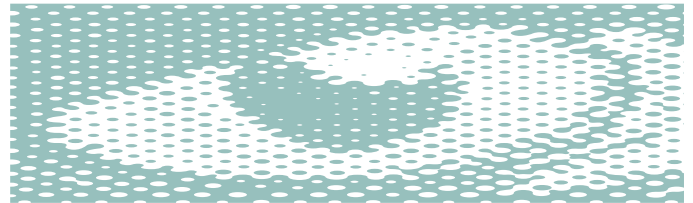
A Golden Sunrise

What a malarkey poor Creo has been undergoing of late! And poor Creo's shareholders. As if competing in a brutal market during times of market uncertainty and economic fragility wasn't enough, the twin powers of sedition and stupidity knocked at the company's door. The unwelcome guest at Creo's party arrived in the guise of shareholder champions, Goodwood/Burton. This group of dissidents had wanted to take a chainsaw to Creo, its board and it top-line executives. But then arrived a champion to possibly rescue Creo from such a fate. Kodak is offering $16.50 per share in a deal worth $980 million and approved by the boards of both companies.

What was it all about?

Before Kodak arrived on a golden charger, an intoxicating brew of money, personal greed, power and impatience for a return on their investment motivated the dissidents. At bottom their actions were all about Machiavellian manoeuvring for money and power, but more crimplene cut-offs than Italian chic. Now that Kodak has entered the fray, matters are taking on a different, rather more shimmering hue. It's hard to really respect the Goodwood/Burton pantomimics, but this whole business did bring to light several issues that merit more than close attention. However none of it really matters now, as Kodak is highly likely to succeed in winning Creo. The problems that prompted the dissidents to act will only need resolution if Kodak chooses to leave the company to potter along as before and this is highly unlikely.

The ugly parts of this picture were sketched out last October when Goodwood Inc and Burton Capital Management, which together owns 5.8% of Creo, declared their intentions to take control. As they saw it "… enough is enough. It is time for a change in Creo's direction so that value is realized for shareholders. Unless changes are made now, Creo's poor operating performance, combined with the significant capital requirements of Creo's current plan, has the potential to leave Creo in a much more difficult financial position and destroy value for shareholders." Their collective grumbling began with dissatisfaction on the part of a small group of investors, apparently egged on by a single, unnamed individual bent on change and on earning more from his and his clients' investments. This Mr. Big had a fair point, in that fiscal 2004 gross margins were 42.4%, down from 44.6% in 2003 and a will dribble down to around 40% for 2005. However the anticipated Q1/05 revenue is anticipated to be around $174 to $175 million, the highest in Creo's history, with earnings at 8–10 cents per share, not 0–4 cents as anticipated last November. The discussions with Kodak must have been going on for a while, so these figures are welcome news for both Kodak and Creo, as well as the shareholders.

Since the announcement of the plan, the dissidents have publicly stated that they believe the offer gives shareholders considerable value for money. They will therefore not oppose it. Various Canadian investment funds hold substantial blocks of Creo shares, including one group controlling, but not owning, 12%. Creo's largest shareholder is based in the US and owns about 5.5%. Several others in the US and Canada have around 5% and the rest are below the 5% threshold. None of these is likely to want to resist Kodak's offer, particularly since the dissidents have declared their support.

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Since October, Creo and the Creo dissidents had been wooing shareholders. On the 10th February there was to have been a vote and shareholders would have been asked to either stick with the current board, or go with the dissidents for wholesale upheaval. Now, that date has been moved to the 29th March, when shareholders will vote for or against the proposed Kodak acquisition, as well as what Creo coyly describes as "the matters currently contemplated by the February 10 meeting". Creo explains that their "shareholders will need to understand the terms of the transaction with Kodak and the stance of those seeking election to the board in respect of the proposed transaction". However Kodak is offering cash in return for Creo's shares and for the dissidents the $16.50 per share is, it seems, enough to shut them up. Also, this cash offer means that there will be no publicly traded shares and so no official board, although Kodak may choose to appoint some sort of internal entity. Unlikely since pandering to past habits generally doesn't work too well in megacorps. Such paper tigers rarely achieve much beyond staff antipathy and spurious time-wasting.

The shareholders view

Most of the 56 million Creo shares are in the hands of anonymous funds and individuals and according to Boudewijn Neijens, Creo's vice president of marketing, their response had been pretty subdued. The various shareholder communities' reactions differed depending on their expectations, but many had been: "sitting on their hands and waiting to see who has the best plan. ... Since the announcement in October, the shares have gone up significantly, with people selling and hedge funds arbitrage bringing in around 25% of our shares to people who don't understand our industry, but who are looking to make a quick buck." Now it seems they will make a rather hefty quick buck! Shareholders aside, the Kodak offer is bound to be a relief to Creo's customers who were getting seriously fed up with the skirmishing and had been very vocal in their irritation.

The profitability challenge

The dissidents had accused Creo's board that in the face of poor figures it has done "nothing", but this wasn't true as recent events amply prove. In July last year Creo's board appointed an external Special Committee to evaluate the business and to come up with a fistful of possible options, recommendations, endorsements or otherwise for the company's strategic development. It is this Special Committee that has being working with Kodak, along with several other prospects, with a view to purchasing Creo. Like most of its competitors, Creo is not exactly in fine fettle and like most of its competitors, Creo has struggled over the last few years. Since declaring in 2002 that it would reach a billion dollar revenue target by 2007, Creo has relentlessly pursued revenue increases. Progress is on track, but maybe it hasn't been swift enough, maybe the direction is wrong, the goal unrealistic, and maybe revenue shouldn't be pursued at the expense of earnings per share, which has clearly happened. The Special Committee had doubtless a range of recommendations for what should happen, if Kodak succeeds in its bid, or not. Either way the challenge remains profitability whether Creo remains an entity within Kodak, or contributes to the success of a new division within it.

Creo's strategy has been to have a breadth of business interests, so even through times of hardship the company continued to invest in R&D and acquisitions, spreading risk, rather than avoiding it. This is attractive to a megacompany such as Kodak, which itself has a huge range of interests.

Gold Plated?

Creo's strategy has been to have a breadth of business interests, so even through times of hardship the company continued to invest in R&D and acquisitions, spreading risk, rather than avoiding it. This is attractive to a megacompany such as Kodak, which itself has a huge range of interests, plus ownership of KPG, manufacturers and suppliers of plates and proofing consumables, imaging technologies, plus the associated software, and of Nexpress and Versamark, which together cover the board for digital printing. Creo's business is prepress automation and everything that contributes to it, including workflow and services, and media. Does Kodak plan overlap or interlink? And what of Creo's OEM sales, its relationships with digital printing developers such as Xerox? And partners such as Dupont? Should we expect to see Creo subsumed into KPG or maybe sliced and diced and redistributed across the Kodak map?

Kodak announced last week that it was putting KPG's chief, Jeff Jacobsen in charge of a new division of Kodak. The Graphic Solutions Group includes KPG, which Kodak now owns outright having bought out Sun Chemical, some of Nexpress, and it would be logical to assume Creo. This sort of overlapped, interlinked model would provide an very large entity within Kodak and one that would need a carefully defined structure capable of supporting all aspects of an extremely complex product line. Such complexity may benefit from further definition, particularly if Kodak wants to keep its Graphic Solutions in close contact with customers, something that Creo is very good at.

Serving this industry and this industry itself is no longer just about the inherent traditions of the graphic arts and the traditional supplier/customer relationship. Modern media production blends digitised graphics sophistication with powerful mechanics, and is far removed from its origins where back end mechanics drove linear print production. Supporting publishers, printers and all aspects of production requires technological reach and applications knowledge, a sort of digital ubiquity, such that a mammoth company ought to be able to provide. Far seeing companies strive for this and Boudewijn confirms that Creo has been no different: "we're doing more and more work on workflow — it is the whole flow from customer to press and finishing and we touch on many components [in that flow]. This is the driver for both the NGP and Value in Print initiatives (see Spindrifts passim), which are all about enhancing competitiveness. It comes down to getting more out of a press through screening, plates, CTP imaging, digital media, i.e. plates and proofing, and managed Certified Colour for colour production automation and management." Kodak is gaining an elegant complement to its existing assets, one that allows Kodak to contribute at virtually every point in the print media supply chain. How well the company manages to do this will depend on how well the organisation can meet the demands of that supply chain, and how swiftly it will be able to anticipate and respond to changing market requirements.

Newspapers is another layer to all of this, and one where KPG is already established. For Creo "it remains a small segment for us after commercial printing and packaging." Current revenue growth comes primarily from consumables which grew around 62% in 2004 and the on demand printing business with Xerox, which was due to grow 20 to 25% this year. Creo anticipated revenue growth of 50% overall in 2005. These numbers could be meaningless, depending on how Kodak manages its relationship with Xerox, and similarly Dupont. According to ▸

Kodak is gaining an elegant complement to its existing assets, one that allows Kodak to contribute at virtually every point in the print media supply chain. How well the company manages to do this will depend on how well the organisation can meet the demands of that supply chain, and how swiftly it will be able to anticipate and respond to changing market requirements.

Xerox existing contracts can be transferred to a new ownership without too much problem, and the company is in general keen to maintain its business relationship with Creo, albeit under an new umbrella. Creo's view is that it is business as usual according to CEO Amos Michelson: "In regards to Dupont, we will continue all activities with Dupont, exactly as before, and Kodak will support all of those activities exactly in the same way that Creo will support it. Likewise, Kodak and Creo are sharing the same philosophy of supporting open standards in the industry, and we will support all different products in the industry regardless if they are provided by Kodak or by other companies. So I see it as business as usual in respect to everything that we do today. How this works in practice when the Graphic Solutions Division gets rolling is less clear since Nexpress will be part of this business unit."

On a plate

Key to Creo's business model and that of all platesetter suppliers is consumables deals. Failure in negotiations with the consumables community, meant that Creo's only choice had been to walk away from the mess and instead dump a crater load of cash on plate manufacturing investments of its own, hence the plants in South Africa and the US, and a greenfield site in Germany. This now cut price real estate will either add capacity for Kodak, or remove it, depending on how Kodak decides to play their hand. The German plant is still in the negotiation stage as far as the building goes, but Creo was funding the entire venture out of internal funds raised from the secondary placement of shares last year, which generated $48.4 million, plus other cash and local subsidies, since the plant is located in eastern Germany.

The consumables business has been Creo's fastest growing revenue source, having increased by 50% in 2004, another reason for its attraction to Kodak. The majority of the Creo plates are used in commercial print, with very few sold for newspapers or packaging. Boudewijn explains: "so far we've done little on the newspaper side. For us it's a lower priority. We do most of our business in the commercial market. The acquisition of the West Virginia plant enabled us to now enter the packaging market with a robust, bakeable plate."

What next?

The Kodak move couldn't have come at a better time for the Creo board, which won't have to answer any of the Goodwood/Burton complaints, including those financial moans and greedy grumblings which can't really be disputed. It's all irrelevant now, as is the fact that the current Creo board has implemented a $24 million reduction plan due for completion by the third quarter 2005, i.e. June. Everything is in place and the changes that have been made will be evident in cash terms on next quarter' income statement. This is unlikely to get immediately derailed if Kodak takes control, however it probably won't have time to fully yield its payback except indirectly for Kodak.

Creo has stated that 95% of its research and development funds are spent on its core activities which generate 98% of the company's revenues, so Goodwood/Burton's intentions to cut R&D would have had a direct and immediately negative impact on customers. Kodak is R&D intensive and so is unlikely to follow this route with Creo. Creo's R&D spending at 12% of revenues is high, so it is in need of review, however a wide scope of R&D and product development is necessary to serve complex preproduction supply chains. There is considerable compatibility between Kodak and

Creo's R&D philosophy, both recognising that future growth depends fundamentally on R&D investment. That work may not be core, but such choices should not only be fiscally driven. Also cutting R&D from 12 to the Goodwood/Burton figure of 6–8 percent means a drastic 50% reduction of the company's R&D programmes. Customers are hardly likely to appreciate that, since much of this work relates to short term development.

The dissidents had also suggested that Creo should be a "low cost producer" of platesetters, even though large format thermal platesetters can't be made on the cheap. If they could, ECRM would surely have done it years ago, having long ago identified the pain points in the platesetting business. Kodak is of course well aware of the manufacturing cost threshold for large format platesetters and also of its need to play more actively in the platesetting business. And as for the V word, it didn't come up at all in the dissidents rhetoric, which suggests the dissidents had either not considered violet imaging, or they don't know it exists, both of which speaks for itself. Kodak however knows very well that that violet imaging exists, very well indeed.

Like the dissidents, Kodak may also have plans for divestiture of non-core businesses. Dumping slices of the business raises cash, while simultaneously getting rid of great tranches of costs. Likely candidates for divestiture prior to Kodak's interest had been Leaf, which for Creo was a non-core and clear cut candidate because it is standalone and very successful. But the picture is very different for Kodak for which Leaf is a stunning complement to its existing digital camera efforts. Digital print could also be deemed non-core but getting rid of it at a time when industry is finally beginning to respond to it would be absurd. It would be particularly silly given Kodak's other digital printing interests, having acquired both Scitex Versamark and Nexpress in order to serve this market. Traceless is at the moment definitely non-core but this OCR based security authentication business has vast potential. Traceless spots a hidden trace material and is an alternative to RFID. It is based on OCR pattern or particle recognition in ink, paper, paint, textiles etc. Given the huge and ballooning counterfeiting and piracy problems facing brand owners, this would be a truly numbskull thing to get rid of, particularly for Kodak which reaches into so many industries.

What we think

The option of a take-over by Kodak was one of several considered by the Special Committee and it is a more than logical step for Creo. When it is approved, Kodak will still need to address the Goodwood/ Burton criticisms, but they will likely be low on the list of management priorities.

Creo, under Kodak or no, in common with its major competitors and the media industry in general, needs to be investing for a much longer-term future. Kodak's deep pockets should help it to do this. Clarity in future development and market direction is necessary for Creo's customers, as well as its competitors and their customers. The future should be focus now, not the past.

– Laurel Brunner

A new generation LCD-monitors

Sometimes technical developments take a sudden great leap forward. This is exactly what has happened to LCD monitors in the last two to three years. Compared to CRTs, they were expensive and had inferior image quality but now that's all changed. With good production quality control and careful packaging and handling in the transport process, the best (and most expensive) LCDs can today outperform even the best CRTs. We can expect LCD monitors to get even better very soon.

LCD monitors have a lot going for them: they take up little space on the desktop, they don't radiate much of a magnetic field, they are crystal sharp, and they have high luminance (brightness) with a larger colour gamut than even the best CRTs. In fact the latest generation LCDs are so successful that most monitor vendors, including Barco, have stopped manufacturing CRTs.

Monitor monitoring

There are many ways to evaluate a monitor, but the requirements for graphic arts production are particularly demanding. We recently set up a test to see how some of the leading models fare for prepress, and to determine whether or not an LCD monitor could be used for colour critical proofing. We applied similar demands for monitor proofing as we did for paper based proofing systems (see Spindrift no 5, vol 2): images and other objects on the page had to be rendered smoothly with accurate colour, and the page had to look like the type of print being simulated. In our test results we express colour accuracy in Delta E values, and measure colour differences in CIELab. Generally a value of Delta E 1 represents a barely perceptible colour difference and for proofing applications an average colour deviation of maximum Delta E 4 is considered reasonable.

The colour gamut of a monitor used for print simulation has to of course match that of quality print on high quality paper, such as sheet fed print on a glossy or semi-glossy coated stock. The colour gamut often referred to in the context of monitors is the Adobe RGB 1998, which is quite a large colour gamut. However it actually doesn't include the entire colour gamut of offset printing and the full tone colours of the cyan, magenta and yellow primaries are especially difficult to achieve. Another RGB colour gamut, that does include the full tone values of offset printed cyan, magenta and yellow, is often suggested as reference. ECI (European Colour Initiative) RGB not only has a fuller gamut, but it has a reference white point of 5000K, rather than the 6500K of Adobe RGB 1998 which is a slightly more blueish kind of white. ECI RGB has the same white point as is used for proof and print evaluation, and as is assumed in ICC profiles for print output. As of today, no monitor on the market can render a colour gamut as large as the Adobe RGB, although several vendors have announced such monitors will be available within some months. Given the speed of LCD monitor developments, we expect to reach even the larger ECI RGB's colour gamut within a few years.

Is there really no standard?

The settings for white point, brightness, luminance and black luminance levels are crucial in monitor based proofing, so we were a little surprised that not one of the vendors referred to the ISO standard ▶

LCD monitors have a lot going for them: they take up little space on the desktop, they don't radiate much of a magnetic field, they are crystal sharp, and they have high luminance (brightness) with a larger colour gamut than even the best CRTs.

for proofing monitors in their documentation. In general the manuals are quite poor, and when calibrating a monitor the user is often left to judge for him- or herself what values should be inserted as the default settings. The ISO 12646 standard for "Displays for colour proofing" was written a few years ago and does not include LCD monitors per se, however it could at least be used as a reference when suggesting settings for both CRT and LCD monitors used for proofing. If a vendor doesn't agree that the ambient light should be at maximum 32 lux they should explain why and under what circumstances a higher ambient light is acceptable. The same goes for recommended brightness and black luminance level settings.

Most vendors seem to agree on a brightness setting of around 120-140 Candela per square meter (cd/m²), while others use the maximum brightness the monitor can produce as the default setting. On most LCD monitors this means 250 cd/m² or more, and this is far too bright in most situations. Ideally the operator should have a low ambient light and a contrast ratio between black and white of at least 1:100. Using a maximum brightness of 120 means that the black luminance level should be a maximum of 1.2 cd/m². But besides referring to measurement values, the point is that what you see on your monitor should look very similar to what you see in print or paper based proofs. And print or paper based proofs should be evaluated in a proper viewing booth, at a white point of 5000K and a luminance of around 2000 lux, not under ordinary office light.

To be able to use the monitor for quality colour proofing, it needs shielding with a hood so that the incoming light from the viewing booth doesn't pollute the viewing conditions. See the separate boxes below for a detailed description of how to correctly calibrate a monitor and what to consider when buying a monitor for soft proofing.

The monitors tested

Apple Cinema HD Display 23

This is a very elegant monitor with uniform colour rendering over the whole surface, except for the last 5–6 millimetres at the outside edges where there is a clear reddish colour cast. The only possible adjustment on this monitor is for increased or decreased brightness. Quite "cool" looking, and no problem as long as you want a white point of 6500K. The Cinema Display is factory set to 7000K and there is no display setting for changing it, so when calibrating the Cinema Display it can be tweaked in software to 6500K but beyond this is questionable. We pointed this out to Apple but their approach is that, so far, "everybody uses 6500K anyhow", so there is no problem. Apple should also consider adding a foot so that the monitor height is adjustable. Much cooler to look at than a telephone directory!

Eizo Coloredge CG21

This is a monitor clearly aimed at the graphic arts market, with a factory setting of 5000K, an enclosing hood and calibration via a special USB connection. Eizo offer its own Color Navigator calibration software. Used together with the digital connection (the DCC/CI cable) and the USB cable going from monitor to computer, this makes true "hardware" calibration possible. The signal is 10 bits per channel and the gamma correction is set in hardware. The Coloredge CG21 comes with a cer-

Apple Cinema HD Display 23

Eizo Coloredge CG21

La Cie 321

tificate of the factory calibration and a printout of the results from the linearisation and calibration.

La Cie 321

For a long time La Cie has cooperated with NEC/Mitsubishi and this monitor looks very much the same as a Spectraview 2180. Normally La Cie offer their own hardware and software to calibrate the monitor. However the La Cie software and hardware were under review at the time of our test, so we used our own devices. The characteristics for the La Cie 321 are, not unsurprisingly, similar to those of NEC/Mitsubishi Spectraview. At this moment La Cie offer generic ICC profiles for the monitor, but these assume maximum brightness, and this is not recommended. Far better to calibrate monitors with the correct settings. La Cie intend to offer proper software and hardware for this shortly.

NEC/Mitsubishi Spectraview 2180

After several years of close cooperation these two manufacturers recently merged. What makes the Spectraview special is that it is factory calibrated to 5000K, and a certificate is enclosed with the monitor to prove it. NEC/Mitsubishi offer its own calibration software, although it looks very much like the software from the German company Color Solutions, and the manual it written by one of their technicians. Anyhow, it's the most comprehensible and thorough manual for any calibration software we've ever tested. There is a very neat feature, with an opening in the monitor hood so that the operator can drop down the measuring device to calibrate the monitor without having to remove the hood.

Quato Graphics Intelliproof 21

This fairly small German vendor is gaining a reputation on the market for its high quality proofing monitors. The LCD panels come from Hitachi, the same manufacturer as Eizo uses. Quato offers its own calibration software, Icolor Proof, and apart from supporting most measuring devices on the market, Icolor Proof can be also bundled with Quato's OEM version of the X-Rite Monaco Optix colorimeter. As with every monitor that offers real hardware calibration, the Intelliproof monitor is connected to the computer with an extra USB cable, in addition to the digital DCC/CI cable. Quato also has a simple solution for attaching the measuring device to the screen without needing to take off the hood, see below.

Sony SDM-P234

This is the prettiest of the monitors tested, but unfortunately the foot isn't adjustable for height, so the telephone directories rather spoil the effect. This is a shortsightedness Sony shares with Apple. Sony's OSD (On Screen Display) menu offers a wide range of user settings, but Sony doesn't offer any special software for calibration. When asked, technicians recommend the Gretag Macbeth software and hardware and while we had high hopes for this beautiful screen it didn't pass the test with very high scores. There was too big a colour change from the upper part of the screen to the lower, and the colour accuracy wasn't as high as expected. So if your demands for colour accuracy are moderate, and your demands for beauty and design are very high, then this bimbette of a monitor is for you.

NEC/Mitsubishi SpectraView 2180

Quato Graphics Intelliproof 21

Sony SDM-P234

How the test was done

We invited the better known manufacturers and vendors of high quality monitors to choose one LCD monitor they thought would be suitable for high quality image evaluation and proofing. We know from previous tests that the very cheap LCDs are normally difficult to calibrate satisfactorily, and that anyhow they don't offer such high image quality as the more expensive ones. As the test results show, even some of the monitors tested had problems achieving the required standard.

Each monitor was calibrated and characterised, and an ICC profile built using both the measuring device and software recommended by the vendor or distributor and with some other measuring devices and software at our disposal. Among these were the Gretag Macbeth Eye One spectrophotometer and Color Vision's Spyder 2 Pro colorimeter as well as X-Rite's Monaco Optix Pro. The maximum colour gamut, extracted from the resulting ICC profile, was compared to those of Adobe RGB 1998 and ECI RGB 1999.

When testing colour accuracy, we used the Monaco Optix Pro software validation process. In this process 24 different colour patches, many of them pastels, are projected onto the screen and then measured with the measuring device. The known colours, expressed in CIELab, are compared with the actual reading and the average deviation is expressed as a Delta E value.

Since the calibration and characterisation only can be performed using a single spot on the monitor surface, normally in the centre of the screen, we also wanted to check the uniformity of each screen. It's not good enough to have the right colour in the centre of the screen: colours have to be accurate all over the surface. Therefore we introduced a second test, measuring the colour in the upper and lower corners of the screen. We set the background colour to be a light grey equal to the value CIELab L90. We used the centre point, where the monitor had been calibrated, as a reference measurement. In paper based proofing, an average Delta E of 4 is considered accurate enough, so in our test we stipulated that the total average deviation based on the results from both tests shouldn't exceed Delta E 4.

As can be seen in the chart, only two monitors (the Apple Cinema Display and the Quato Intelliproof 21) achieved this. The Apple Cinema Display has a default white point of 7000K, which we adjusted in the software down to 6500K. Anything less than this done through the software could have compromised the monitor's accuracy, and yet Apple offer no monitor controls other than brightness. It's therefore questionable if the Cinema Display can be regarded as a high end proofing monitor. According to all applicable standards, both in the US, in Europe and internationally, proofing should be done at 5000K, yet Apple don't seem to think this matters.

Apple's monitor was not the only one failing to meet the demands we had set out for this test. Everyone can of course set their own demands for a proofing system, but we argue that the demands on a monitor based softproof and a paper based proof should be very similar.

– Paul Lindström
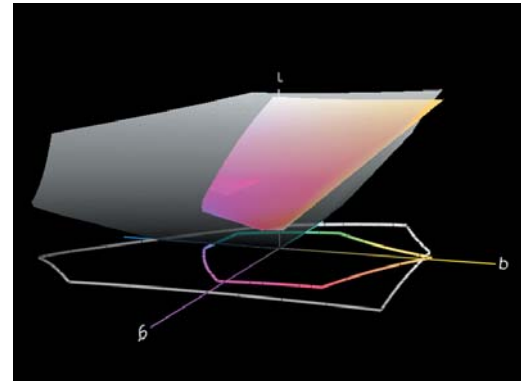
The Adobe RGB 1998 represents a large colour gamut, but doesn't include all of the colour gamut reached in high quality offset printing. In this 3D diagram (created using Chromix Color Think software) the outer translucent grey sphere represents the Adobe RGB. The inner and coloured sphere represents the gamut of print according to the ISO 12647-2 standard, on glossy coated stock.
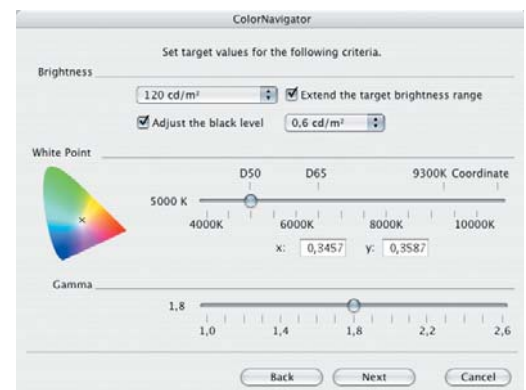
There are a lot of settings to go through when calibrating a monitor for proofing. Here an example of settings that follow the ISO 12646 standard for "Displays for colour proofing".

Table 1 – Colour Accuracy & Uniformity			
Model	24 Patches	Uniformity	Total Variance (Delta E)
Apple Cinema HD Display 23*	1.5	1.1	2.6
Eizo Coloredge CG21	3.1	2.5	5.6
La Cie 321	3.4	2.4	5.8
NEC/Mitsubishi Spectraview 2180	2.6	3.1	5.7
Quato Graphics Intelliproof	2.8	0.8	3.6
Sony SDM-P234	3.4	2.7	6.1
* at 6500 K			

The total average variance should ideally be lower than Delta E 4.

Table 2 – Colour Gamut			
Model/Colour Gamut	% of CIELab	% of ECI RGB	% of Adobe
ECI RGB 1999	19.99	100	112.7
Adobe RGB 1998*	17.74	88.7	100
Apple Cinema HD Display 23**	14.23	71.2	80.2
Eizo Coloredge CG21	14.33	71.7	80.8
La Cie 321	15.79	79	89
NEC/Mitsubishi Spectraview 2180	15.47	77.4	87.2
Quato Graphics Intelliproof	13.81	69.1	77.8
Sony SDM-P234	14.12	70.6	79.6
As reference:			
Barco Calibrator CRT***	13.69	68.5	77.2
Radius PressView ColorMatch CRT**	13.05	65.3	73.6
* at 6600 K			
** at 6500 K			
*** at 5500 K			
**** The Radius PressView isn't sold any longer, but is often used as a reference colour space, especially within newsprint prepress production.			

Manufacturer	Model	Size (inches)	Approx. Price (€)
Apple	Cinema HD Display 23	23	2500
Eizo	Coloredge CG21	21	2550
La Cie	321	21	1450
NEC/Mitsubishi	Spectraview 2180	21	2300
Quato Graphics	Intelliproof	21	2650
Sony	SDM-P234	23	2200

Things to consider when buying an LCD monitor for proofing

Now that LCDs are often the preference when buying a new monitor, there are very many brands and models to choose amongst. Although it's possible to calibrate virtually every monitor on the market, the final result may be a disappointment if you don't choose carefully. As usual you generally get what you pay for. For colour critical proofing applications, choose a monitor from a supplier who either offers calibration software of their own, or can at least suggest suitable calibration software when asked. A proofing monitor should be equipped with a hood to block ambient light, so vendors that enclose such a hood are likely to understand the needs of a proofing solution.

The monitor should be connected using a digital cable (DCC/CI) in conjunction with a USB connection between the monitor and the computer. This is the only way to set the gamma fully in hardware. It is possible to control brightness and contrast through software and the digital cable, but with the extra USB cable you get one step further in control.

Check the colour uniformity over the whole surface of the screen. It's fine to have accurate colours in the centre of the monitor, but there shouldn't be too big a deviation in other places on the screen. Set the desktop background to a very light grey, as this often reveals any non-uniformity on screen. If possible, measure patches with a spectrophotometer or colorimeter and calculate the average deviation, expressed as Delta E.

How to calibrate a monitor

1. Switch on the power and let the monitor achieve the correct working temperature. This will take at least 20 minutes, but we recommend you to leave the monitor on for a full hour before calibration.

2. Make sure the monitor is connected according the manual. If there is a special USB cable between the monitor and the computer, this should be connected to achieve full and automatic hardware calibration.

3. Start the calibration software and follow the instructions. For high end proofing choose 5000K as reference white. For general image retouching you may consider 6500K, but then you have to trust the colour management function of the operating system and software involved to perform the colour transformation to 5000K if you want to simulate the printed result on the monitor. This may or may not work satisfactorily.

4. Try to achieve a low surrounding ambient light condition. The ISO 12646 standard recommends as low ambient light as 32 lux, but this may not be practical in a mixed office environment. In low ambient light, you should choose a luminance (brightness) of no more than 120 cd/m^2. If you work with a brighter surrounding light you may need to increase the luminance for the monitor to a higher setting, but this is both a greater strain on the eye and the images may not appear the same to other users working with more moderate luminance on their monitors. The whole idea with ICC based colour management is that images should appear similar, independent of what kind of monitor displays them, be it a CRT or an LCD.

5. Create ICC profiles using the standard matrix model. It's tempting to choose what should be the better option, using 3D LUTs (Look Up Tables) based ICC profiles instead. Unfortunately this may not work satisfactorily in a mixed workflow. Apparently Adobe Photoshop can render images inaccurately if 3D LUTs monitor ICC profiles are introduced into the workflow.

6. Check your monitor ICC profile by opening well known documents and test charts. Compare these on screen to existing print and/or reference proofs. Some software offers validation processes to check the accuracy of the monitor and it's calibration, and this may be useful too.

7. Recalibrate your monitor every second week, or at least once a month.

The latest top of the line LCDs now surpass CRTs in several ways, not least of which is price performance. However although prices are dropping fast, there is still one quality aspect that could do with improvement. Often the colour uniformity over the whole surface is too poor and you have to check your new LCD monitor carefully for transport damages. If your new (and perhaps expensive) LCD doesn't have a uniform appearance across the whole screen it may have been slightly damaged during transport and you shouldn't accept this particular monitor. A minor non-uniformity is unfortunately quite normal on all types of screens.

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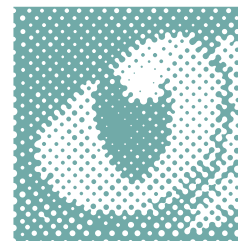
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