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QUALITY INVESTMENT

Mark Diehl explains why it's worth investing in computer to screen (CtS) technology

Computer to screen (CtS) equipment can be justified in a number of ways using financial tools such as Payback Period, Internal Rate of Return, and Net Present Value. Easy calculations, but then we also need to look at the opportunity to increase both quality and latitude in pre press by choosing the right CtS. No matter how good the press is, the quality cannot be put back into a screen at press stage. To increase profitability you need to improve the process.

The rate of return in a traditional ROI spreadsheet calculator (which can be supplied by most if not all CtS manufacturers) will be dependent on a number of factors including: number of screens imaged; current cost of film and supplies; labour to output the film and inspect (normally done by the art department); retrieving the film; film folder jacket; taping the film; storing the film; disposal of film (getting harder); physical steps to and from the printer and the screen room; time spent touching up pin holes after developing the screen; and most importantly, time spent registering screens on press.

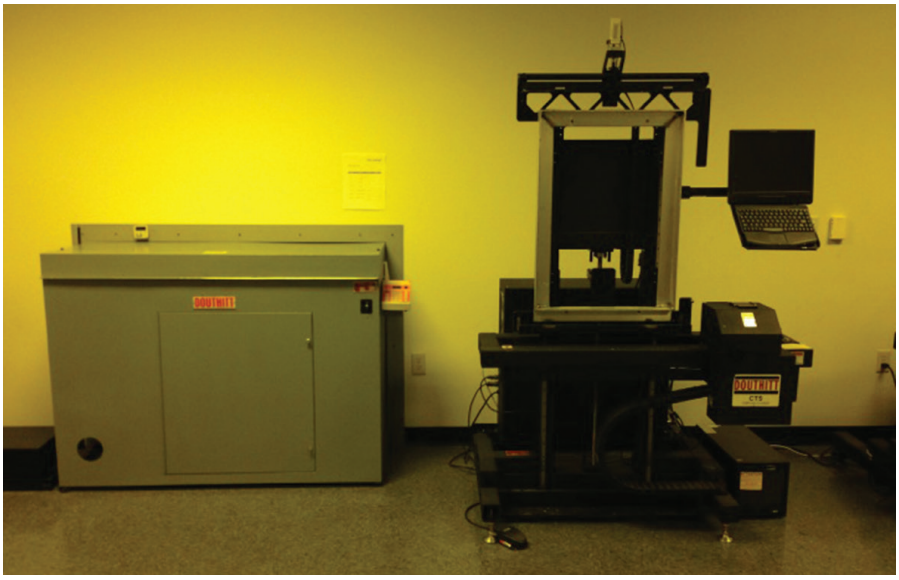
EXAMPLE OF CTS COST SAVINGS

The chart below illustrates the payback period for a customer doing only 32 screens per day and using the Douthitt Waxjet CtS including a new RIP for 25x36 or smaller frames. Purchase price was about $54,100 [£39,610] and **figure 1** shows the financial justification.

REAL NUMBERS FROM REAL PRINTERS

To show the fast payback system, starting in the screen production area we talked to Greg Kitson of Mind's Eye Graphics. Kitson has been using the CtS for many years and he said "I was thinking I'd be saving $2.00 [£1.46] per screen in film; the reality is, I was saving 15 minutes in time!"

You may not get that type of saving, but consider all the steps that go away and/or are shortened. The artist sends the file to a film output device; someone needs to unload, cut, package and transport that to the screen room; the screen maker opens the folder, tapes the film to the screen, lays it on the vacuum frame, waits for contact, exposes; the film goes back in the folder; after developing, the screen needs to be inspected for pinholes (dirt on glass or film) and touched up. With CtS, in less time than outputting the film you have a screen imaged, and because we do not need vacuum, glass or film, exposure time is cut by over 40%. Finally, because there is no film or glass: no pinholes!



Installing CtS can save a lot of labour and time on press

The more exciting savings have to do with the registration time on press. New Life Industries in Kentucky shared some numbers with us recently. When they were using film (and a film registration system) the average set-up time for an 8 to 10-colour job was nearly an hour. They switched to CtS (without an optimised registration system) and cut that time down to 20 minutes. Finally, they installed a Douthitt CtS with a MHM optimised registration system and are now doing set-ups in 8–10 minutes. All times are based on two workers and start when the presses are pallet ready and the operators start loading the screens. Richard Humble states these times are all on their MHM Synchroprint 4000.

At Mind's Eye, Kitson will see a typical five-colour set-up time reduced from up to 12 minutes a colour with film to 3–4 minutes a colour with CtS and his M&R. "In my contract shop that is an extra $1,000 [£732] or more per machine every shift," he said.

MHM and M&R presses have very different registration systems and it is important that the CtS and press registration systems are matched. Make sure your CtS manufacturer will adapt the registration system on their equipment [to suit] the press.

Continued over

Assumes a purchase price of $54,100.00 which includes the CTS 30 and the Xitron based Harlequin Rip and doing an average of 32 screens per day 21 days per month:

Payback period	10.51	months
NPV - net present value of savings in today's $	$7,303	12 Months
IRR - Internal Rate of Return	109.25%	yearly rate of return (average of three years)

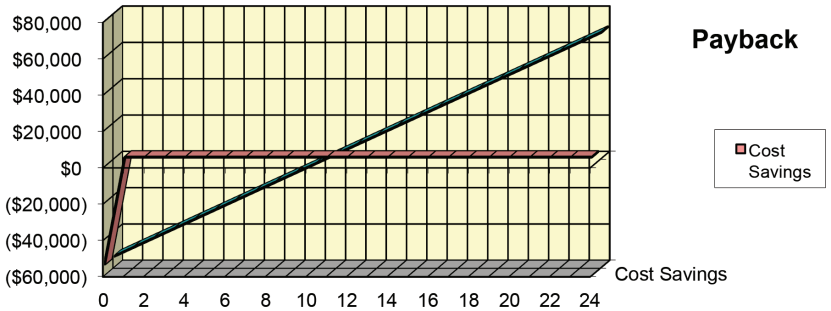


Figure 1:Douthitt diagram ROIbased

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SOME ADVANTAGES OF CTS TECHNOLOGY

- Elimination of film.
- Fewer processing steps including taping films on, vacuum draw down…
- Digital workflow eliminates the handling and storage of films.
- Elimination of leading cause of pin holes.
- Faster exposure times.
- First generation of art on screen
- Faster on press set-up and registration

Again, with 32 screens a day, the payback period is well under one year. This technology is easily justifiable to anyone with even one automatic and doing 15–20 screens per day. It is important not to settle for a low initial cost item that does not offer long term durability. You want to be sure the design and support allow for long term production use and quality with equipment that has a short and long term proven track record.

INK VS WAX CTS

Most CtS can save you a lot of labour and time on press. However, the other huge consideration is the quality improvement of wax CtS vs inkjet. The dot quality and detail of a good wax jet unit will greatly improve the quality over inkjet film or an ink jet CtS. Even with inkjet CtS, many customers still go back to film for 'quality jobs'. With wax jet CtS, you should never go back to using film for any job.

Considerations when choosing ink or wax:

- Incompatibility of some emulsions when it comes to ink. Less Latitude.
- Ink splatter vs. wax. Wax gives a much cleaner dot that does not spread with time.
- Ink density vs. wax. Wax gives a much higher density = correct exposure.
- Choosing emulsions based on exposure/ink rather than press process factors.
- Under exposing emulsions to compensate for poor ink density or need to expose fast.
- Need to change coating technique to compensate for the requirements of a ink-based system.
- Wax means that you do not need to revert to film to do 'quality' jobs.
- Issues with under exposure (durability of mesh and issues reclaiming).
- More tonal compression hurting image quality with inkjet than wax.
- Wax offers a smaller footprint and is more ergonomic to load. Advantages of the wax vertical design over the ink horizontal units.
- Environmental conditions are not as critical with wax.

Again, I stress the best part of screen printing is the latitude it provides but the worst part of screen printing is the latitude – in other words, often key steps or fundamentals are not optimised. The key is not to settle because it works for what you do now but strive for the best print quality on the shirt (the key is the printed piece) to stay competitive or ahead of much of the competition.

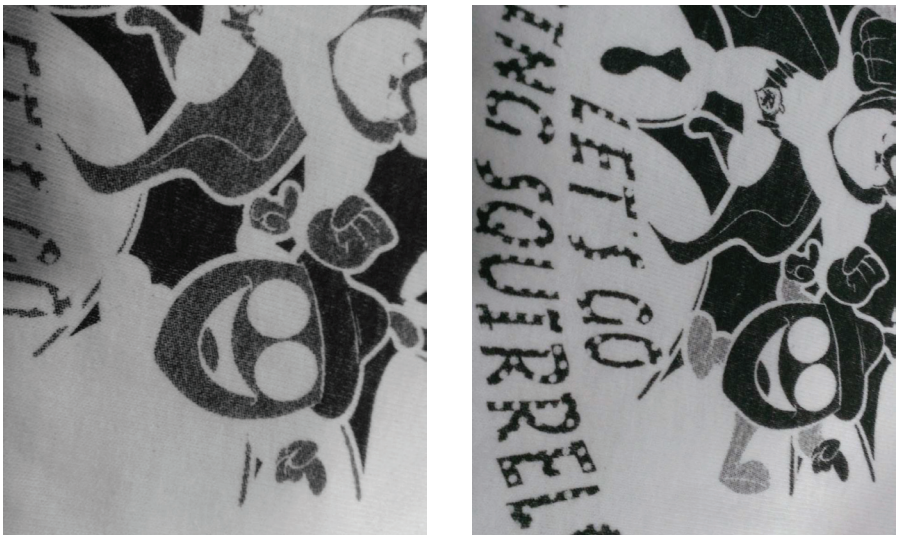

Figure 2: Comparing the dots held on ink vs wax (same screen and same light)

DIRECT COMPARISON

From a Dave Makin article published in *Screen Specialty*:

"I've been able to go into many shops that have both technologies side by side. We've produced the same image from both machines onto one screen. I've developed the wax and ink at the same time in one of the machines that prints and exposes, first by printing half on the wax machine, then the other half with the inkjet, then allowing the inkjet machine to expose the emulsion. After washout, both images looked good but, at the press, the waxjet image was by far superior. It was because of the density as much more detail was held with the waxjet. We had speed, quality and consistency with the waxjet that the inkjet just wasn't delivering." (See **figure 2**).

Compare, compare and compare. Send your coated screens to the manufacturer(s) you are considering and have them show you the speed and quality and then run the job on press. A customer in Pennsylvania does 500 images per shift on one waxjet from Douthitt. He did his due diligence and made sure the registration system and speed were all in place since his main factor was press make ready. The added quality was just the bonus for them.

POST-SALE SUPPORT

One of the most important factors is the level of support after the sale. Douthitt customer ThreadX said that Douthitt does not do a good enough job letting everyone know that their level of support is a huge advantage for them. It needs to be better 'branded'. Many people find out too late that they do not have the after sale support they expect.

ALWAYS STRIVING TO IMPROVE

Back to my Ford Motor roots in the 1980s when we had to study William Edwards Deming's philosophy. The work he did with automotive industry is legendary and he stressed improvement of the process every step of the way. Screen Printing is no different. On press is the wrong time to discover a problem, when it is more costly to fix. To paraphrase a few of Deming's many points:

1. Create a purpose toward improvement of product and service, with the aim to become competitive, to stay in business and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. (Definitely still true today for screen printing).
3. Build quality into the product in the first place. (All about the screen fundamentals in pre press and the right tools to achieve them.)
4. End the practice of buying equipment on the basis of a price tag instead of value and quality.
5. Always keep improving the system to improve quality and productivity, and therefore constantly decrease costs.

Quality and service are easy things to boast about – and many companies do – but the real measure of a company and its products is when the quality and service transcend words and are born into reality. Take time to be sure your new equipment of any type does NOT limit your latitude but instead takes you to the next level. Demand quality and service on every capital equipment. Douthitt is proud to be celebrating 100 years of manufacturing excellence later this year and is proud to have the fastest and most dependable waxjet unit on the market. ■

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