The Digital Dots Wild Format Digital Printing Technology Guides are about providing you with all you need to know about investing in wide format digital printing technology. The Wild Format goal is to create and share objective and independent explanations of key digital production technologies. The Wild Format articles are relevant for all parts of the graphic arts supply chain, especially print buyers and designers. They're for anyone with great ideas who wants to get them into print cost effectively and conveniently.

The Wild Format guides are intended to expand awareness and understanding of the craziness that can be created on wide format digital printing devices, from floors to lampshades and everything in between.

These guides are made possible by a group of manufacturers working together with Digital Dots. Together we hope you enjoy the articles (yes, there will be more) and that you put into practise what you learn. If you want to talk about it, go to our LinkedIn group at ***http://linkd.in/1pkeLH1***

Enjoy and Go Wild!

This is the fourth article in this part of the Wild Format Series. It is supported by . . .

AGFA Agfa

Digital Dots

FUJIFILM

Mimaki

Device Management (in Wide Format Production)

One of the most challenging tasks in wide format production is to manage all the devices in the workflow to ensure colour consistency. This obviously includes the fleet of printers used, and perhaps less obviously but equally important, the measuring devices, the viewing

booths and the monitors. The range of possibilities that the latest substrates and digital print technologies offer, makes device management especially crucial for successful results, no matter how wild the project.

Four steps to heaven

For every device used in colour managed print production there are four key components to achieving consistent print output at a specified level of quality. The first one is to determine how quickly (or slowly) a device such as a monitor or printer drifts away from its ideal state, that is, how often does the device needs re-calibrating. The frequency will differ from device to device, depending both on how much the device is used, but also on the production environment. A viewing booth is perhaps the component least prone to changes over time, but it still needs to have its light tubes changed every year, or sooner if the booth gets many hours of use per day. And after a number of years the inside of the viewing booth needs to be repainted to ensure the correct grey background colour.

A monitor may only need calibrating every couple of weeks, assuming that no one changes the settings in between times. At some point the monitor will be too old to show colours accurately, so you need software that can validate that the monitor is still capable of producing the colour gamut you expect, and within the tolerances specified.

A large format printer may need daily recalibration, especially if you don't have temperature and humidity controls in place in the production hall. In general a printing device behaves better if it's used regularly to some extent, ideally daily or at least weekly. The risk of letting the printer stand idle for too long is that the inkjet heads will clog up, and printheads are costly to replace. Far better to perform at least a weekly calibration and linearisation as a routine task, even if there are no jobs planned for the printer. This will achieve two things: the inks will be "jogged" which means they get stirred up and forced to flow to reduce the risk of clogging. It also means that the printer is immediately ready for the next job when it comes in.

Measure for measure

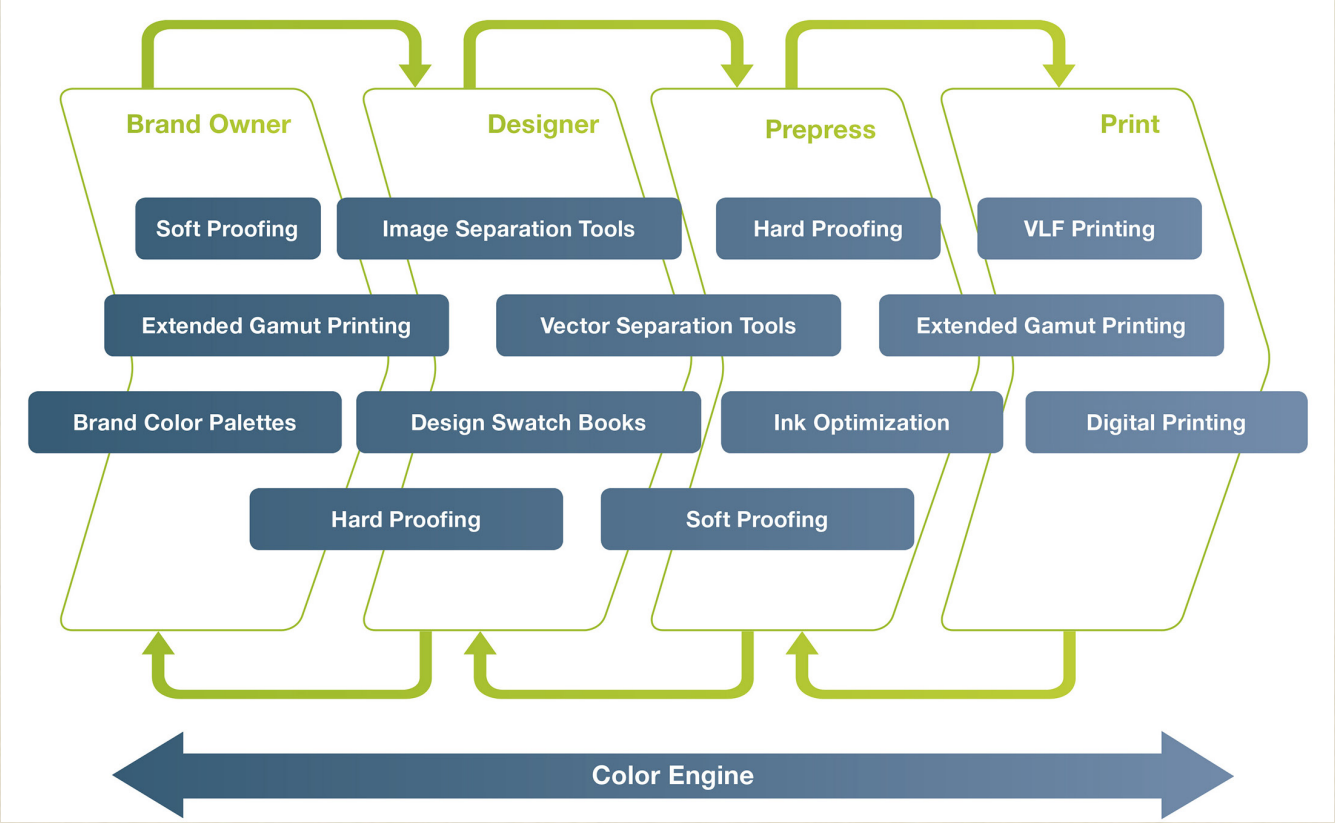
The second thing to determine for any colour managed device is what measuring device is the best one to use for checking its performance. Normally this will be a spectrophotometer, but not all spectrophotometers are suitable for large format production. In general the spectrophotometer should have a fairly large aperture to get correct measurements. And if you are to measure transparent

The Barbieri Spectro LFP is for flatbed spectrophotometry and is capable of both reflective and transmissive measurements.

substrates, very few spectros on the market will do the job. One vendor to check out for those types of measurements is Barbieri. For monitors and viewing booths you will do well with a standard spectrophotometer, as long as it's one of the more recent models. Older spectros are not very good at measuring the newer types of monitors which use IPS (In-Plane Switching) LCD technology. And don't forget that measuring devices need to be serviced at regular intervals as well, so be sure to follow manufacturers' instructions. Annual servicing is quite common for these colour critical measurement devices.

Calibration and validation

The third thing to decide when calibrating and validating a device is what test form is the best suited for the job. On the one hand you want the calibration to be fast, but on the other hand you want it to be accurate so you should select a test form that reflects these requirements. Once you have decided on which test form to use, you need to document which parameters should be set for the combination of substrate and print mode used. This is in line with basic good housekeeping because you can't achieve



The ESKO Color Engine is a colour management solution that covers a very wide range of applications and devices, including optimizing the accuracy of spot colours.

consistency if you change the calibration parameters all the time. After calibration it's crucial to validate that the calibration/linearisation achieved the desired result.

Decide on which tolerances for colour deviation would be acceptable in normal production and record what the deviation is before and after recalibrating. If a device is very stable over time, you can allow for longer intervals between calibrations. If on the other hand a device seems to drift off quite quickly, you need to calibrate more often and evaluate the results of the changes.

Frequency

The fourth thing to pay attention to is what daily, weekly and monthly maintenance the manufacturer recommends to perform on the printer. This is a preventative action to ensure a stable print result and to avoid unnecessary halts in production. Keep records of the maintenance, and analyse if there are trends in when and if the printer doesn't perform to expectations. If you combine that with keeping records of the temperature and humidity of the environment, it will help you troubleshoot inconsistencies in print quality and rectify them so that they don't recur.

By its very nature keeping track of all devices in the workflow and checking their status in terms of colour accuracy is an endless and time consuming task. For this reason several vendors have developed colour management tools to help with it. One such solution is XMF Colorpath from Fujifilm. This is a cloud based solution which tracks the behaviour of a range of devices, and includes modules to create and edit ICC profiles. The main principle is to decide on which printing standard to conform to, and then align all the printing devices to as close a match as possible to this. Colorpath can be installed as a complement to Fujifilm's XMF RIP system, or work as a standalone application. Other vendors like Esko and GMG have similar solutions, and correctly implemented they can save you both time and money. They will reduce makeready times, prevent customers from rejecting jobs, and all in all guarantee stable high quality print production.

– Paul Lindström

The Digital Dots team specialises in consulting and editorial for digital prepress, printing and publishing technologies. This includes research, testing, evaluation and content services for publishers, printers and print buyers.

Our Wild Format Series is the latest in a long line of educational projects for graphic arts professionals, including designers and content originators. We also publish Spindrift, a subscriber supported, monthly journal with readers all over the world and a sharp focus on technology.

We work on various ISO committees developing standards for print production and the environment, and we are accredited auditors for ISO 12647-2 and ISO 9001 in the UK and Sweden. You can find out more about us at ***digitaldots.org***.