Heidelberg and Fujifilm to open new horizons

INTERVIEW WITH JASON OLIVER // With Jason Oliver we have a newer colleague onboard heading our Digital Business Area. Mr. Oliver joined Heidelberg coming from a North American based digital print supplier, where he was heading global sales of digital inkjet printing systems. Mr. Oliver is a U.S. citizen and studied in the USA and Germany. He is fluent in German and English and has held numerous executive positions for various North American and European digital printing companies. Let's take the chance to get some firsthand information on his thoughts about Heidelberg and of course Heidelberg's future ventures in the area of Digital Printing.

Jason, why did you agree to join Heidelberg a year ago?

Because I love a challenge :-). Seriously, I knew that Heidelberg had a unique position that would allow us to be successful. I've been involved in digital printing equipment and software my entire career, and I know how hard it is to build a successful, sustainable digital business. Most companies face two huge challenges. First, it's nearly impossible to develop and integrate all of the right technologies and feature sets by yourself. So you need partners, and if you are small, no one takes you seriously. Second, if you succeed at developing a great digital product, you need to take it to market. That means you need a channel. Building a channel is extremely difficult and takes big investment.

Heidelberg addresses both of these challenges. Heidelberg remains the brand in the printing industry, and nearly everyone wants to be our partner. We have an outstanding sales and support group, with great customer relationships and trust. These things make the job of building a digital business much easier.

How has the digital business strategy evolved recently?

We agreed on a few principles. First, our digital business needed to evolve from a reseller model to a full system integrator model where we are at least a part owner of the technology and the consumables stream. Second, we needed to limit our focus to a core technology or set of technologies that fit into whole products for a range of markets, including markets where Heidelberg has little or no presence. Third, we needed to build partnerships to share or develop those best-in-class technologies. Fourth, the digital business needed to incorporate all of the capabilities, projects and products, like software, that are required to be successful in the digital game. And finally, we needed to focus on businesses that would clearly generate profits over time with sustainable recurring revenues.

So what are the most significant developments so far?

We've made some important decisions that have focused our efforts. It's a bit strange to use the term 'focus', since we have initiated several new projects and significantly increased the scope of the digital business, but the focus is noticeable. For example, we have narrowed our own development efforts down to single-pass drop-on-demand (DOD) inkjet. Therefore, we have frozen development of liquid toner technology and are in a wait-and-see mode with Landa on nanography. We have signed a deal with the leading player in industrial inkjet, Fujifilm, and have multiple projects going with them. The divestment of CSAT was the right move to allow our team to focus on the bigger opportunities. And we have consolidated Prinect and the 3D Decorative Printing groups into the overall digital business.

How is your leadership team adjusting to the pace of change?

We have a phenomenal team. Robert Crooker leads our business development efforts, and he has been the key to both, the Ricoh and Fujifilm relationships and progress. We wouldn't be where we are without Robert. Andreas Forer runs product management and his experience in leading teams, specifying and marketing digital equipment is a key reason Linoprint C sales have grown quickly and I have great hope for the products currently under development. On the Prinect side, Christopher Berti drives the product and sales side and he continues to look for creative ways to grow Prinect. Klaus Schelble is responsible for implementation and service for Prinect, among other things, and he has also taken over service for current and future digital equipment. And we have three excellent people running Digital R&D: Hans Butterfass for inkjet equipment and ink, Bernhard Wagensommer for Prinect, and Dr. Bernhard Buck for 3D decorative printing. We expect huge things from them.

There are so many other great people on our team who are too numerous to mention, but I think everyone is aware that we will only be successful as a team, challenging and supporting each other.

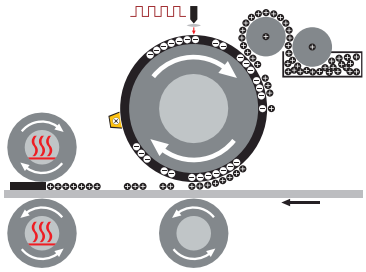
> "Heidelberg picked the technology – and partners – of choice to be able to operate on a competitive level in the market."

Can we go back to the decision Heidelberg made to get back into digital?

Well, obviously I believe Heidelberg made the right decision to get back into digital. So when Robert Crooker and a few others were tasked with figuring out how Heidelberg could quickly get back into digital, they did the right things. They looked at the channel we had and the knowledge in commercial print, identified the short run gap below the breakeven with Anicolor and offset in general, and started looking at partners. It's no surprise to me that Ricoh stood out as a good fit. They've been a leading developer of several core digital technologies over the years, especially dry

Dry-Toner Technology

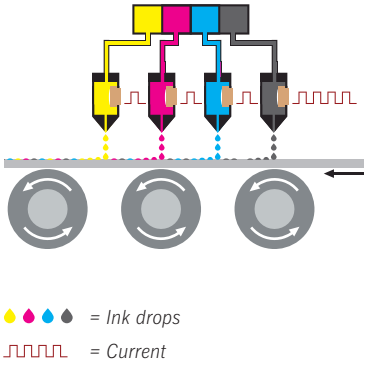
Core component is a revolving drum or cylinder given a total positive charge by a wire with an electrical current running through it (corona wire). As the drum revolves a tiny laser beam discharges certain points. In this way, the laser "draws" the image to be printed as a pattern of electrical charges. Since it has a positive charge, the toner clings to the negative discharged areas of the drum, but not to the positively charged "background." With the toner pattern affixed, the drum rolls over a sheet of paper, which is moving along a belt below. Before the paper rolls under the drum, it is given a negative charge. This charge is stronger than the negative charge of the electrostatic image, so the paper can pull the toner powder away. Finally, the printer passes the paper through the fuser, a pair of heated rollers. As the paper passes through these rollers, the loose toner powder melts, fusing with the fibers in the paper. The Heidelberg Linoprint C series use this technology to achieve excellent image quality at a great price-performance ratio.



⊕ = Positive charge ▮ = Laser beam
⊖ = Negative charge ◪ = Corona wire

Inkjet Technology

Inkjet printers operate by propelling tiny droplets of liquid ink onto substrates to form the printing image. The technology offered by Fujifilm use a piezoelectric crystal in each nozzle which changes shape or size when current is applied. This forces a droplet of ink from the nozzle to the substrate. There is a great potential of varieties of stocks since the ink is directly transferred to the substrate.



toner, and they've made significant acquisitions to extend the technology and their channel. They really wanted to move beyond copy shops and corporate accounts into production print. In turn, Heidelberg needed ready-made products that produced high enough quality that a Heidelberg customer could compare it to his offset output. We needed products that could still deliver quality even after many months of high volume use. The Ricoh Arias, which became our Linoprint C901, fit the bill.

So how are things going with Ricoh today?

Very well. I remind people all the time that no other conventional press company in the world has successfully sold large numbers of digital devices. We are the only one. It is a very different game than selling conventional presses, and the fact that our product management, business drivers, digital specialists, and all of the Heidelberg account managers have placed well over 300 units is a unique success. And Ricoh's support out of Japan and in most regions has been fantastic. They want their salesmen to help us place units, and they actually reward them in most regions when we make a sale. That's a true partner.

Having said that, we still have work to do. We are not yet hitting the numbers from the original business case, but even though the original plan was very aggressive, the case still works when we sell lots of units. The good news is: we will generate well over 12 million euros in clicks in fiscal 2015 – even if we don't sell a single Linoprint C during the whole year. That's how the digital business model is supposed to work. So we need to keep fighting for every deal, and the payback will come. We will also see new, innovative and cost effective digital presses from Ricoh in the near future, and that will enhance our position in the market. Ricoh is moving fast. We have to keep up.

It seems like we are focusing most of our development efforts on inkjet. Why?

Toner printing has actually been around for almost 90 years. Xerography was invented before the Great Depression and companies have invested billions to bring it to the mature state it is in today. It is hard to believe the speed and quality from a Linoprint C901 or C751. Really impressive.

Then about 25 years ago Benny Landa bought some old Kodak patents on liquid toner and developed Indigo. We all know the story, including what HP has done since the acquisition for $800 million over ten years ago. Liquid toner is a great extension of dry toner, and you can't argue with the quality. HP has recently introduced larger format machines, and they really want to compete directly with Heidelberg offset.

But toner has its challenges. Arguably, job repeatability can be an issue. Speeds are not close to what we see with offset. And running costs cannot approach those of offset inks. Companies continue to invest to improve these shortcomings, but change is slow because the technology is pretty mature. This doesn't mean toner won't continue to be an important technology in printing markets, especially in the commercial print market.

Looking at inkjet, especially drop-on-demand inkjet, it is much earlier in its lifecycle, and the current rate of change is astonishing. The increase in print speeds, printhead reliability, ink carrier flexibility, and resolution in just the last ten years is unprecedented. And because DOD inkjet can use UV, oil, latex, water and hybrid inks with pigments or dyes in a non-contact process (it doesn't touch the paper), inkjet can fit a huge range of markets and applications.

And possibly the most attractive thing about inkjet is the simplicity of the process that should equate to reliability and low cost production. When you consider how an inkjet head works to create drops with no moving parts other than a piezoelectric crystal that expands and contracts when charged and then compare that to the complexity of a toner printer with drums, lasers, wires, developer, and so on, you begin to see why so many experts see inkjet's role in the future of print expanding greatly.

For Heidelberg, we can develop technology expertise and even intellectual property (IP) around inkjet integration without having to worry about developing our own printheads. With the right development plans, including for inks, we can be an owner of technology and a world-class integrator and enjoy the recurring revenue and margins from products we develop or co-develop.

What are the goals with our new partner Fujifilm? How will the cooperation work?

Our friends at Fujifilm have spent the last two decades quietly acquiring some of the top technology companies in inkjet. That includes ink companies as well as printhead companies like Dimatix. Today, Dimatix has the top native 1200 dpi DOD printhead in the world, and they use it in their Jet Press 720.

With the commercial launch of the Jet Press 720 in 2010, Fujifilm became the first to offer a production-level B2 sheetfed inkjet press with offset quality output. The 1200 dpi printhead with drops smaller than 2 picoliters helped. But they also had developed some unique ways of dealing with problems like nozzles jetting crooked or not jetting at all. While the Jet Press is far from a commercial success, Fujifilm has gained a technology advantage and

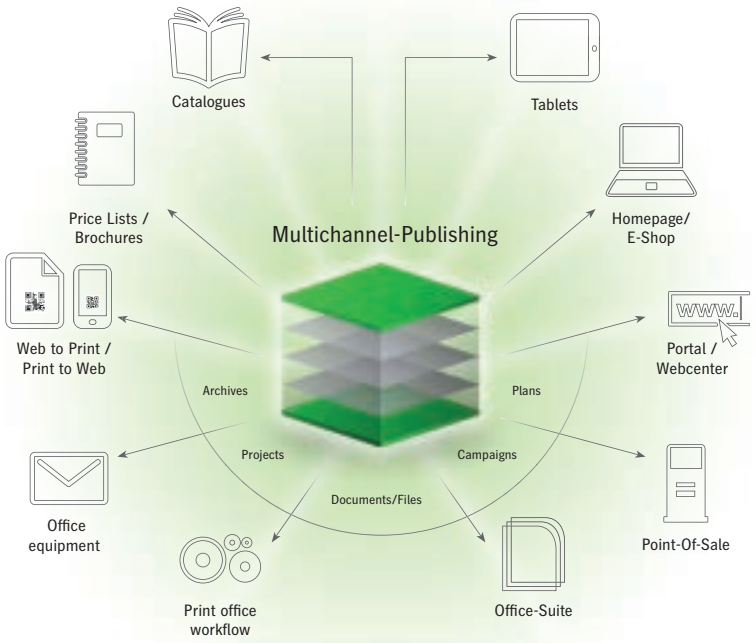
tremendous experience these last several years. We can build on that in our cooperation.

The first project we have going with Fujifilm is to simply evaluate the Jet Press as a potential member of our digital portfolio. We have installed a Jet Press 720 in our R&D facility, and Fujifilm has had their engineers living in Heidelberg for a while now. We are testing and learning about the product and the processes involved as quickly as possible and we will be shipping that Jet Press to a Heidelberg customer in the next month or two. This customer is going to extend the testing phase in real-life production environment.

Another reason to evaluate the Jet Press is to identify areas where further cooperation will lead to breakthroughs in inkjet technology, especially around ink, printhead, substrate and drying. If we have learned anything from testing the Jet Press, it is that the print quality is exceptional. It is matching known offset quality. But next generations of the product, co-developed by both companies, will need to compete in an ever-more challenging arena full of digital presses. To date, many if not all of these offerings lack a feature that Heidelberg customers expect from their offset presses: TRUST. Can they trust the machine to be productive enough that they can pay their lease? Can they trust that the data being sent to the machine is actually what is coming out the other end? Can they trust that the printed pages can be processed and finished without problems?

So as we lay out the areas of cooperation, which may even include other technology companies with expertise in areas like ink curing or quality detection, we see the need for open sharing and information exchange. We see the need for invention. We see the need to break processes and rebuild new ones. So we came up with a word to describe these processes and patterns of cooperation that will bring inkjet to the necessary level of quality and trust. We are calling it 'SYNERJETIX'.

The first product of 'SYNERJETIX' is already in the prototype phase. Through cooperation with Fujifilm and Gallus, our sister company with the leadership position in label presses, we have developed the next generation inkjet label press. This will be the first inkjet press with the quality of offset, speed of flexo, in-line integration of any label converting process known from Gallus and print durability advantages of UV inkjet. We will show the machine in September this year and launch it for commercial sale soon after. And by meeting that TRUST standard through the application of SYNERJETIX with a roll-to-roll machine in labels, it enables us to quickly expand and move to other roll-fed markets where inkjet will be a great fit.



Neo7even is offering a multi-channel publishing solution, enabling print shops to offer media or channel independent publishing for their clients and with their clients.

Of course, everyone is asking what intentions we have for the commercial print market. All I can say at this time is that SYNERJETIX is allowing us to work with partners like Fujifilm on concepts that were unthinkable just a few years ago. Inkjet will play a big role in commercial print, and SYNERJETIX and our partners will make sure Heidelberg plays a leading role.

What is the Heidelberg relationship to Landa at this time? What do you expect out of that?

We continue to be fascinated by the investment into and ingenuity coming out of Landa Corporation. Benny Landa has taken on a huge challenge, and if he succeeds he will change printing forever. But huge leaps in technology seldom happen overnight, so we are looking forward to a development point when Landa can show true proof of concept. This would include repeatable, acceptable print quality at production speeds. Until that point, we will keep an eye on developments and prepare for a day when the technology is ready for market.

Why was Prinect merged into the digital business?

As you know the Prinect family is the core of our software strategy. It grew many years ago from presetting into a comprehensive software suite, integrating business elements as well as production relevant information. It is the brain that drives a customer's business. The Heidelberg strategy is geared to offer offset and digital equipment and let the customer decide the fit for each print job. Prinect is tying all the pieces together. And because software and front ends are so critical to the success of digital in general, it made sense to merge the Prinect group into our digital business.

Our strategy has also included growth through acquisition. In 2011 we acquired the software company CERM and used their base product to create Prinect Business Manager. Most recently we took a

significant ownership position in Neo7even which will open lots of new possibilities for us and our customers.

How does the recent investment in Neo7even fit into our strategy?

Neo7even offers a multi-channel publishing solution: Print shops can offer media or channel independent publishing for their clients and with their clients. The core is the central database where information is just stored once and can be output in many variations – the channels – and use, for example, print as one output channel, and the internet or smartphones as additional output channels.

Obviously print shops active in the catalog business are a very interesting target group, since they can make catalogue creation more efficient for their customers and at the same time publish it by addressing the growing demand to connect print-, online- and mobile-communication.
But we are aiming one step beyond: The media neutral approach is not new, but commercial printers did face serious challenges in the past to make that approach successful in this market. By also taking digital printing into consideration, we will encourage print shops with a profound understanding of their digital business – whether for software or digital print – to address this growing market segment and create new business out of it.

I would also like to mention that we gain additional software development resources from Neo7even and will make use of those. The benefit for our customers will be the opportunity not only to operate Internet Printing Portals but get a whole system that fulfils their needs. Based on our open interface philosophy within Prinect we will be able to quickly connect the Neo7even software with Heidelberg components. And our international reach should help as well. Neo7even successfully integrated into whole sale giant Metro, and Metro is using the software to drive their communication activities in China. It's a great story. With Neo7even, there should be many more of those to come.

> "The expertise in machine building and paper handling, as well as the strong global market presence and the brand recognition make Heidelberg an attractive candidate for any cooperation."

Another new addition to digital is to print on 3D objects. What's the plan there?

This is an exciting opportunity for us. For a few years now, a clandestine group of brilliant engineers within the bowels of Heidelberg has been secretly integrating robotics, 3D surface reading and rendering, and inkjet technology. The goal was to develop systems that could print on the surface of virtually any consumer or industrial object. We call it '4D Printing', because we are adding a fourth dimension – print – to any 3D object. This is not only a new market for Heidelberg but also a new business model.

Within 4D printing, one can think about printing on everything from bottles to balls to beanies. Direct inkjet printing allows more flexibility and personalization as well as cost reduction due to elimination of processes. On the other hand, industries like automotive, aircraft, and construction are looking for creative ways to add print in a single process. This offers us the potential to embrace a new business model where the customer pays per print, as opposed to pay for ink and other consumables. We can even build the capital cost of the printer into the "per print" charge.

And I'm happy to announce that we have progressed our developments to a point where we are ready to launch a product in 4D. We call it Jetmaster Dimension, and we've already signed a contract with Europe's leading web-to-print company, FlyerAlarm, to print on soccer balls. FlyerAlarm is the ideal customer to test the market for personalized sports articles.

Can you give us your thoughts about the role of digital versus offset in the industry and at Heidelberg?

In the future, printers will have a dual perspective – productivity and offset will be the answer in some cases, flexibility and digital will be the answer in other cases. In all cases it is about making a profit. We are in a unique position, because our know-how in offset technologies will ultimately help us with digital printing. We want to make sure that printers have the best alternatives when they work with Heidelberg, whatever their needs are. That means for tomorrow's printers: there is no alternative to Heidelberg.

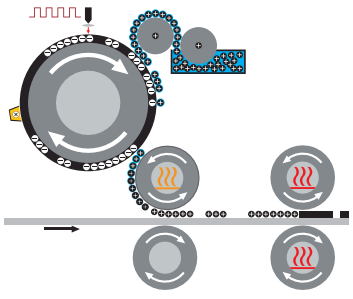
Other than that, I simply want to say thank you to those who have helped our digital business get to where we are today. The future should be exciting. ■

Liquid Toner Technology

The principle of liquid toner printing is very similar to the dry toner principle, with the difference that dry toner colorants are usually mixed with other dry magnetic carrier particles that serve to control the electrostatic and physical behavior of the colorant-infused particles.

With liquid toner the colorant-infused toner particles are suspended in a liquid 'carrier' – usually a mineral oil of low-volatility that serves to make the toner particles tacky by which the toner particles can migrate into the substrate.

This principle causes a poor de-inkability in the recycling process of the printed products.



⊕ = Positive charge
⊖ = Negative charge
= Laser beam
= Corona wire