

Making Sense of, and Profits with, Technology

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In our rapidly evolving world of often disruptive technology, making sense of the options available to printing companies can be challenging. Buying a new press is no longer a sufficient investment to ensure ongoing profitability. Printing companies must also invest in a range of solutions that optimize productivity and streamline workflow. In this article, Bondy and Sherburne provide concrete advice that will help printing companies in making the right technology decisions as they plan for 2018 and beyond.

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With fall trade-show season just behind us, many service providers are left to synthesize the recent wave of technology innovation into practical terms that can positively impact their businesses. By positive impact on the business, we mean either new or adjacent capabilities that can foster top-line revenue growth and/or an innovative solution that optimizes workflow to reduce cycle-time and increase speed and quality, ultimately reducing cost.

With that in mind, we believe that technology investments should be considered both in terms of the value of new and improve services to our customers these investments enable along with the positive impact they will have over time on both your top line and bottom line. In this article, we discuss both technology adoption and emerging and disruptive technologies that might provide a positive impact for service providers. We also explore areas of opportunity for print services providers that leverage the latest technologies and address emerging trends we see in the market.

Technology Adoption

Disruptive technologies, a term coined by Clayton Christensen, Harvard Business School (1997), are innovative technologies that change the way we work by creating new market opportunities that eventually displace or disrupt the norm. Disruptive technologies don't come along very often; they can enable tremendous opportunity, but also considerable risk. Adopting them often requires a shift in mindset and significant operational changes. For example,

production inkjet technology has proven to be disruptive since it changes the market opportunity for print, yet considerable planning is required when implementing this technology, especially in environments that were primarily analog, since it requires a streamlined workflow that will keep the press busy in order to gain a reasonable return on an expensive investment.

Other technology advancements are seen as incremental rather than disruptive. In the case of inkjet, this might be a hybrid printing solution that incorporates inkjet print heads on a traditional press line, bringing personalization to otherwise static print. In this case, there are clearly changes that need to be made in software, data management, etc., but these are incremental, rather than disruptive, changes.

Managing technology adoption is critical for service providers. It is important to develop a balanced portfolio of incremental technology improvements and selected disruptive technologies in a manner that provides growth and differentiation but not at the risk of customer satisfaction. All service providers operate under the same constraint: scarce resources; and choosing technology initiatives that tap into these scarce resources is not a simple task. In many cases, companies do not have the right resources, and it can often be difficult to attract them. In either case, planning is essential. Determining what short-term initiatives (incremental technologies) can impact operations in three to six months should always be on the table., while contemplating longer-term initiatives (disruptive technologies) that offer access to new markets and new business models requires complex analysis over a longer period of time. In other words, the combination of incremental and disruptive technology adoption needs to be undertaken with a view toward the ability of the operation to operationalize the technologies such that there is a true positive impact for both customer and service provider.

Managing Technology Acquisition

The risks associated with technology acquisition can be minimized by employing several techniques.

- Establish a **3-year rolling technology roadmap** that includes both incremental and disruptive technology acquisition moves needed to drive optimization and achieve new business models and/or revenue streams. This technology roadmap should have two major components:
 - An operational view: including technology cost, capability and implementation schedule; and
 - A business view: time to operationalize, value to organization, value to customer, revenue projection (sales/marketing) and margin contribution plan. This does not need to be a 100-page report you will never read – I like a spreadsheet with with tabs for 6, 12, 18, 24, and 36 months. Each tab contains the technology plan and financial justification for technology acquisitions.
- **Know your finances!** Develop a simple break-even calculation (Net-Present Value NPV) for all technology acquisitions that you can use for all capital expenditures incorporated into the 3-year plan above.
- Think in terms of **integrated services** that your customer will buy, and test the value proposition with existing or prospective customers. This will help you assess the willingness to buy, price sensitivity and any hidden switching costs (more on this in the next section). Integrated services can be a key differentiator that helps lock customers in and take you out of the commodity space.
- **Know your customer**; understanding the voice of the customer (VOC) is an essential aspect in the development of your technology roadmap. This is not limited to a discussion with your current customers; it also means looking at the market opportunity for the new service(s) which may likely target customers you are currently not serving. Most new services can be prototyped to a level to allow prospective customers to evaluate the impact of the service on their businesses. Conducting focused groups with working prototypes can help validate the market opportunity before large investments are made. A good vendor partner will work with you to make this happen.
- Consider **all upstream workflow activities** that need to take place to enable a streamlined production process and invest in these activities first until the front-end

workflow is optimized. Seek partners to help you with production in order to build volume as you work through workflow issues. Far too often, service providers invest in printing or other technologies in advance of their ability to efficiently process the job and complete a streamlined premedia workflow. This includes the ability to ingest a sufficient volume of jobs to feed, for example, a production inkjet press; or the ability to profitably manage possibly hundreds, or even thousands, of small jobs after implementing a web-to-print solution. Success is more likely for firms that lead with customer requirements (sales and marketing), followed by front-end optimization (order through approval), and finally production technologies through to shipping and invoicing. This approach helps ensure demand is always greater than supply, an essential requirement for success as a service provider.

- Determine all **post-production services** that are essential for customers to truly experience a complete integrated service. Far too often, service providers leave valuable profits on the table by not exploring the opportunity that might exist for finishing, fulfillment, and logistics services. All these adjacencies are contenders for an expanded value-chain that is, in many cases, meaningful to customers who want a more comprehensive service.
- Once analysis of the technology fit is completed (all steps above) and you have made a purchase, it is critical to establish a **Product Development Process** for onboarding your new technology and implementing new services. Extra care in this final area will ensure the acquisition will meet or exceed both operational expectations and the expectations of your customers. A good product development process includes a series of predefined phases including: market opportunity, technology selection, technology implementation, workflow optimization, alpha/beta test, and launch. This ensures that all the value envisioned in the acquisition can be realized, and that the operation does not acquiesce to a lower-than-acceptable ROI.

What's Next: Technology-Driven Opportunities

For those involved in services that support promotional, publishing, and transactional markets, such as marketing services, commercial printers, direct mailers, and publication

and book printers the content owners and marketers that you serve are highly motivated to track everything these days. Marketers, content developers and brand owners have an insatiable appetite for data – they are interested in all aspects of their audience, and prospective audience. They want to know what communications work in what media and why. They want to know what doesn't work, and why. And they are looking for ideas on how to build further on what works and modify what doesn't.

Furthermore, marketers, content developers and brand owners are interested in organization of their content (digital assets) and their campaigns (campaign management). Service providers that have the foresight to work as far upstream as they can (where ideas and strategies originate), and help the marketers, content developers and brand owners process the data that drives strategies and campaigns, will be in a prime position to perform end-to-end services with involvement in envisioning, developing, delivering, managing, and tracking campaigns.

Technology-driven opportunities exist for service providers in the front-end or premedia areas of the workflow. We list some of the revenue growth opportunities available for service providers to help them expand upstream in the workflow and connect more intimately with marketers, content developers and brand owners. We also provide examples of companies that provide these solutions, although there are many more than we can list here. In many cases, the investment into these areas are minimal when compared with the investment levels required for printing equipment – and the investments in this area provide a more relevant connection with clients that will ultimately need to print.

- Data Services and Analytics
 - Data Visualization and Analytics (hosting and reporting on audience data)
 - Cloud-based data analytics, Tableau, Scisense, IBM Watson, SAP Lumira Cloud, Adobe Marketing Cloud, EFI Business Intelligence
- Content Services (Digital Asset Management – cloud storage and organization of digital media assets)

- MediaBeacon, MediaBank, Open Text, Canto to name a few).
- Campaign Management (Managing and reporting on the cross-media campaign process)
 - Marketo, XMPie, MarCommCentral, SharpSpring, Eloqua, Adobe Marketing Cloud
- Integrated Cross-media, including Interactive Print
 - Example cross-media solutions
 - XMPie, MarCommCentral, Konica Minolta EngageIT, EFI Direct Smile, Adobe Marketing Cloud ...
 - List top Interactive Print solutions
 - LinkReader (from HP), Linkz-IM, Stampatech, Digimarc, Ricoh Clickable Paper, DocuMobi

For a discussion about interactive print, augmented reality and virtual reality to understand what each is, [read this article](#).

Service providers should also take a serious look at their IT infrastructures and staffing to determine a migration strategy for moving business processes to the cloud. Some firms now mandate that all new services are cloud-based and many are systematically moving legacy systems to cloud-services. A number of premedia processes are moving to the cloud to take advantage of cost/performance benefits and making it easier to collaborate, both internally and externally. This speeds time to market.

Service providers can also realize cost benefits from upstream solutions that help streamline workflow by eliminating steps and touch points, and help customers by implementing faster, easier to navigate, and more automated workflows with the ability for customers to access status and other information 24/7. The following upstream solutions are examples of tools that offer workflow optimization for the benefit of both customer and service provider.

- Web-2-Print: Order Fulfillment Job Template Design and Formatting
 - EFI Digital Storefront, Aleyant Pressero/eDocBuilder, XMPie, PageFlex, EFI DirectSmile, Infigo, ZenPrint

- Automated MIS – automate quote, order, status, delivery and logistics
 - EFI Monarch, Pace and PrintSmith Vision; Avanti Slingshot; Presswise; Heidelberg Prinect; Propago
- List management and acquisition (hygiene, postal optimization, appends)
 - AccuData, BCC, Satori, Pitney Bowes, Ricoh Mail Integrity Suite, Neopost

From a printing and finishing perspective, there are both incremental and disruptive technologies that service providers can incorporate into their services offerings. From an incremental perspective, every solution supplier on the market works tirelessly to provide new features and capabilities in their product lines. Features that increase quality, throughput speed, sheet-size, color gamut, substrate latitude, etc., are all very valuable and should be monitored to determine when the cost/benefit analysis supports an upgrade.

For service providers in the market for new additions to their production print workflow, it is very important to do a thorough analysis of production inkjet options. Production inkjet is a disruptive technology on the brink of breakthrough. Some might rightfully argue that the breakthrough for production inkjet has already occurred, and for some specific reoccurring print applications they are completely correct. Production inkjet has already impacted parts of the publishing, direct mail and transactional print markets, and will ultimately penetrate the entire spectrum of printing applications. Promotional printing and packaging are on the not-too-distant horizon for production inkjet; inkjet is already making inroads here, most notably in labels. Inkjet has also already had a huge impact on the signs & display graphics market and is tackling textiles as well with growing success. There are many opportunities to deploy these disruptive solutions.

Note that acquiring a production inkjet system without following the technology adoption steps mentioned earlier can be problematic. Investigating the type of inkjet printing system you need to meet real, substantiated market demand is critical. Inkjet technology has come a long way in the past five-years, and advancements in this area will continue. Decisions regarding the roll versus sheet, speeds versus resolution, substrate availability, and finishing automation are all elements that need to be evaluated by you and your customers.

3D printing also provides possible innovation opportunities for service providers. There are many debates as to whether 3D printing is real printing (traditional) or more of a manufacturing venue. In fact, another name for 3D printing is Additive Manufacturing, and it is finding growing adoption across a wide range of manufacturing disciplines. But there are also [3D printing solutions](#) targeted specifically at the graphic arts industry that are finding homes particularly in the signs & display graphics business, allowing the inclusion of dimensional elements with 2D printing. MassivIT is an example here. And we've come across other stories where experimentation with 3D printing has turned into real new revenue streams for forward-thinking service providers.

For printers that manage logistics and deliver integrated products via pick-and-pack and assembly solutions, 3D printing may be an adjacency that makes real sense. The same advice applies to 3D as with production inkjet: both are disruptive technologies that need new business models, work processes, talent and market engagement to be successful – appropriate planning is essential. One large format printer that has ventured into this area advises that the first step in a 3D printing implementation is hiring a 3D designer.

Finishing technology typically advances incrementally, due to its mechanical nature.

Advancements in speed have come from refinement to the systems over time by incorporating electronics and precision tool parts into the systems. And today's finishing systems include a much higher level of automation that can read codes and accomplish setup on the fly, significantly reducing makeready times and labor. In recent years, we have also seen a number of finishing breakthroughs in the area of digital embellishments that are making an impact. Companies like MGI, Highcon, Scodix, JetFX and others have developed innovative solutions for delivering personalized and/or short run foil, embossing, debossing, cutting and more, either in-line or near-line. As speeds and quality for these systems increase, they are being adopted by digital and offset printers alike. We saw these solutions really come to fruition at drupa 2016. [This article](#) outlines some of the developments there along with other important drupa developments. This provides a streamlined way to deliver an entire host of print embellishments that can be personalized and delivered in one integrated workflow, enabling

service providers to eliminate entire analog production lines of while expanding the level of customization.

A Word to Suppliers

- Focus on the market opportunity rather than speeds and feeds to help service providers meet the needs of target customers that need the services you enable.
- Involve customers in an immersive product development process.
- Contemplate a healthy ecosystem; the service being offered, value received, and profit being made by the service provider.
- Offer cloud-based solutions and ensure that your solutions are open enough to address the multi-vendor environments that are the norm today.

Future of Associations

- Focus on intended use of integrated systems – markets and integrated workflows.
- Bring the frontend of the workflow to life at all your events.
- Involve real customer examples at all events.
- Incorporate elements that will attract millennials (17-36 in 2017) and Gen-Z (1-16 years old in 2017) throughout the events.
- Include meaningful educational content at all events.