

Color Print Migration Market Update 2017



A Madison Advisors Report
December, 2017

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EXECUTIVE SUMMARY

Stating that the introduction of the color inkjet printer changed the world of print is an understatement, to say the least. While the price point for a color image has decreased to a significantly attractive level, the increase in adoption for transactional communications has not been as impressive—but the good news is it's getting better. The printing industry has been rife with analyst predictions about its demise, especially since the introduction of email, and more recently other digital delivery mechanisms. USPS mail delivery volumes dipped slightly in 2016 from the previous year—down approximately 2.2%—but based on continuous research efforts conducted by Madison Advisors, print is certainly not dead and in fact, we believe it will experience a revival thanks to the color inkjet technology available in the market today.

Deploying color inkjet printer technology can offer a print service provider or enterprise in-plant many benefits such as better output quality at faster speeds and a streamlined production process, to name a few. But it is not as simple as swapping out old monochrome toner based equipment with a shiny new engine. There are a lot of considerations that come into play and challenges to overcome to create a successful color inkjet strategy. It is not a strategy that is solely determined by print operations or IT, but a strategy that needs to involve the entire organization to ensure its success.

For the last ten years, Madison Advisors has conducted research efforts within the print and mail industry, including the migration from monochrome to full color for both enterprise in-plants and service providers. Our Best Practices Assessment (BPA) collects hundreds of data points for service providers and enterprise in-plant operations alike, which complements our entire research efforts in this industry. Additionally, we conduct market pricing research in the service provider segment that is specifically focused on transactional communications. Our first color migration research conducted in 2011 revealed that the use of full color for transactional communications was less than 1 in 5 images. This latest research represents data that has been collected for the calendar year 2016, and indicates that adoption of color has certainly grown over the last five years, but not as fast as anticipated. The results of our data collection revealed that 62% of the total images produced in 2016 by print service providers and enterprise in-plants combined were still monochrome, and for industry-leading color inkjet printer manufacturers, this is good news and provides greater opportunity to penetrate the transactional printing industry.

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RESEARCH METHODOLOGY & KEY OBSERVATIONS

The focus of the data collection for this research was business-to-consumer (B2C) customer communications that are transactional in nature and span a variety of highly regulated verticals such as financial, insurance, healthcare and utilities. To conduct this research, Madison Advisors obtained image volume data from 22 organizations from the service provider and enterprise in-plant market. Image volumes were classified by monochrome and color, and by vertical. The data captured represents the total volume of images produced by these organizations in 2016.

The sample size reflected in this research is significant. At 39.78 billion images, it is characteristic of the transactional printing industry across the different vertical segments represented, and totals over \$922 million in retail value for print and mail services, based on pricing data collected in our *Service Provider Market Pricing Study, 5th Edition* published March, 2017. Some key observations from our data collection efforts include:

- 81% of the total image volume was produced by print service providers, despite the equal number of service providers and enterprise in-plants.
- Use of color is not volume dependent. With only 3% of the total image volume, broadband /cable had the highest use of color at 98%. Banks represented close to 25% of the image volume and yet 54% of those images were monochrome.
- Although the insurance and health care verticals still continue to lag, the use of color by these two verticals combined increased to 16.3%, up from 5% in 2011.
- Of the total 39.78 billion images accounted for in this research, approximately 62% were monochrome, indicating that there is still a significant market opportunity for color inkjet.

COLOR INKJET: A BRIEF HISTORY

The genesis of high-speed, variable data inkjet printing began in 2004 when Kodak introduced its new Versamark system, touting the idea of “business color” to distinguish it from the image quality typically produced for graphic arts. Today, all color inkjet platforms produce superior image quality that serve all markets, and the connotation of “business color” has since been dropped. Yet before inkjet, the use of variable color printing for transactional communications was limited to toner-based, spot or highlight color to replace color logos pre-printed on base stock. This advancement eliminated the two-step process used for transactional documents where blank stock paper was first run through the color toner equipment to print the color logo and create the base stock, and then subsequently run on the monochrome printers to overlay with the variable print data.

Adoption of color was hindered by the capital investment and maintenance costs associated with equipment acquisition. In addition, cost per image for consumables was high due to lower throughput and slower print speed. This made color print unattractive and a tough sell for service providers and hard to justify for enterprise in-plants. The high price point did not stop with the initial capital investment for the engines. The cost to implement the new workflow and process changes also incurred additional expense. The process to create and maintain the images was often underestimated and introduced an entirely new and unexpected set of challenges.

The Kodak Versamark provided a glimpse into a new world of possibilities in color inkjet technology. Faster throughputs and other advancements in hardware technology helped to lower the cost of consumables and ultimately the price per color image, making color inkjet technology a viable option for enterprise in-plants and service providers.

RESEARCH ANALYSIS

Madison Advisors collected data from a total of 22 service providers and enterprise in-plant operations; however, despite the even split between the two, service providers produced over 81% of the total image volume in 2016 as illustrated in Figure 1 below.

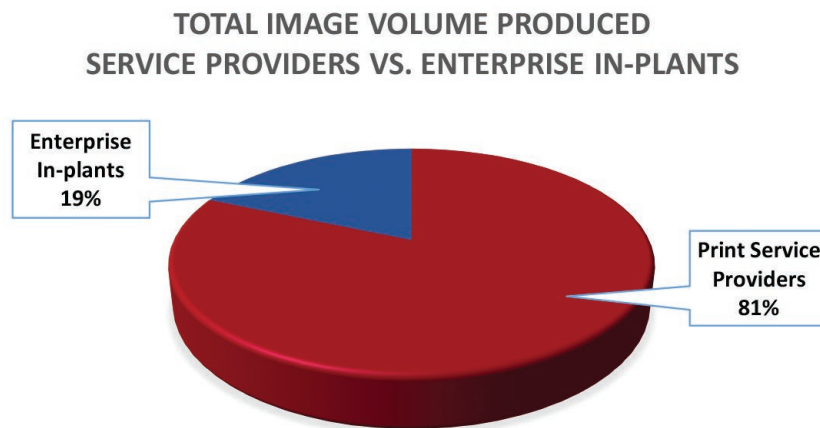


Figure 1 – 2016 Total Image Volume Produced - Service Providers vs. Enterprise In-plant Operations

The image volume data collected indicates that monochrome print still dominates, representing 62% of the total image volumes for both service providers and enterprise in-plants combined. Although the percentage of color has increased since our last research, there is a lot of opportunity for color usage in the transactional communications space, as illustrated by the graph shown in Figure 2 below.

TOTAL IMAGES PRODUCED IN 2016 MONOCHROME VS. COLOR

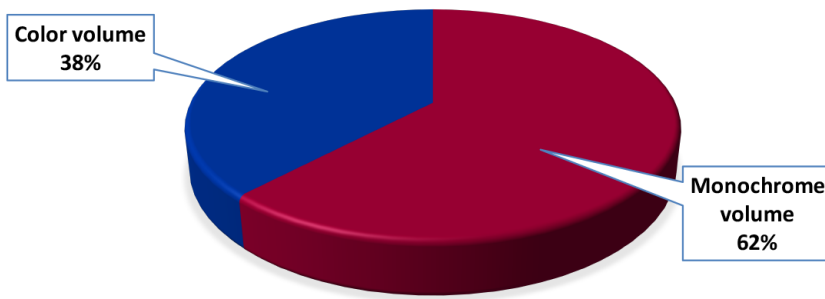


Figure 2 – 2016 Breakdown of Monochrome vs Color Images (n=39.87B images)

The breakdown of monochrome and full color for service providers and enterprise in-plants is represented in Figure 3. Monochrome print largely dominates the volume produced by enterprise in-plants and since most of these in-plants operate in verticals that have been slow to adopt color, such as insurance and healthcare, this is representative of what Madison Advisors sees in the industry. In-plants operate as a cost center and do not generate revenue for the organization; therefore, justifying the significant capital investment required and generating an ROI has been a sizable challenge for most—in-plants need to focus on operational efficiency and discover ways to add value for the organization and its customers.

Although most of the print service providers in this study have made the investment in color inkjet printers, their clients have been slow to convert their transactional communications from monochrome to color. Our data collection reveals that the percentage of color images produced is lower than anticipated, despite the availability of color inkjet technology. Large volume transactional communications for highly regulated verticals such as brokerage, mutual funds, insurance and healthcare have the highest usage of monochrome print, while the retail, credit card and broadband/cable verticals utilize more color. As a result, service providers with a large percentage of clients in highly regulated verticals listed above that have been slower to convert to color are producing more monochrome output.

Enterprise in-plants that make the decision to outsource their print and mail operation typically focus on the production requirements necessary to transition work out of their facility to the chosen service provider. The focus of the outsourcing arrangement will be on the critical details that involve transitioning an entire production operation to a 3rd party provider such as file transmissions and data security, testing and quality control, and the provider's ability to meet strict service level agreements. The decision to redesign transactional communications to incorporate more color can occur once the transition has been completed.

For most enterprises, the challenges with producing transactional communications are further upstream from the actual print production. Many of the clients Madison Advisors engages with have legacy core processing systems that produce transactional communications and several document composition tools that are versions behind the current release. Other challenges include the lack of a centralized content management solution and a data warehouse that normalizes and stores customer data to be used for personalization of customer communications, data analytics and business intelligence purposes.

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**% Color vs. Monochrome - 2016
Service Providers & Enterprise In-plants**

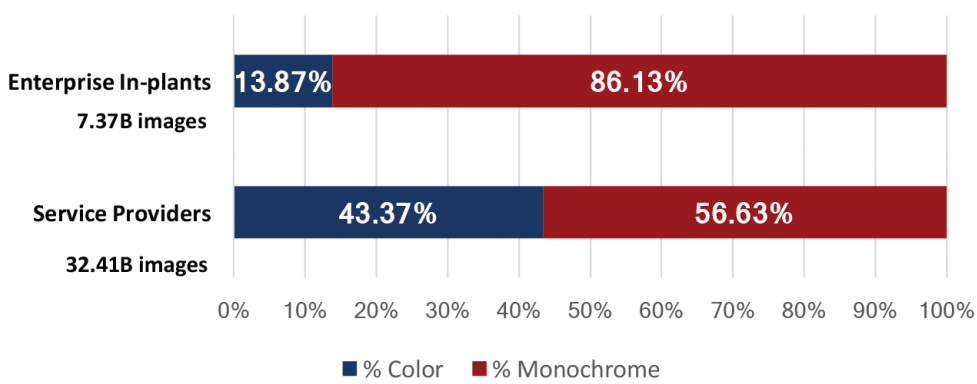


Figure 3 – % of Color vs. Monochrome for Service Providers and Enterprise In-plants

COLOR USAGE IS INDEPENDENT OF VOLUME

Madison Advisors categorized the participants into tiers based on volume of images produced by each organization. Table 1 shows the classification of the 11 service providers who participated in this research, and the average percentage of monochrome and color images produced within each tier.

| Service Provider Tier (based on 2016 volume) | Total # of PSPs | % monochrome (average) | % color (average) |
|--|-----------------|------------------------|-------------------|
| Tier 1 (>than 5B) | 3 | 63.0% | 17.8% |
| Tier 2 (1B – 5B) | 6 | 57.1% | 42.9% |
| Tier 3 (< than 1B) | 2 | 41.6% | 58.4% |

Table 1 – Service Provider Tiers Based on 2016 Total Image Volume

As indicated by Table 1, the use of color is not necessarily related to higher volume production. Although three of the service providers in this

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study each produced greater than 5 billion images in 2016, the average percentage of color output is less than 18%. Conversely, two of the service providers that produced less than 1 billion images per year, had a much higher average percentage of color, at slightly above 58%. The graph in Figure 4 shows the percentage of color compared to total image volume for each service provider. This graph shows that higher volumes did not necessarily mean a higher volume of color output. Although Company I produced close to 10 billion images, less than 20% were color; however, Company D had the highest percentage of color and produced less than 2 billion images.

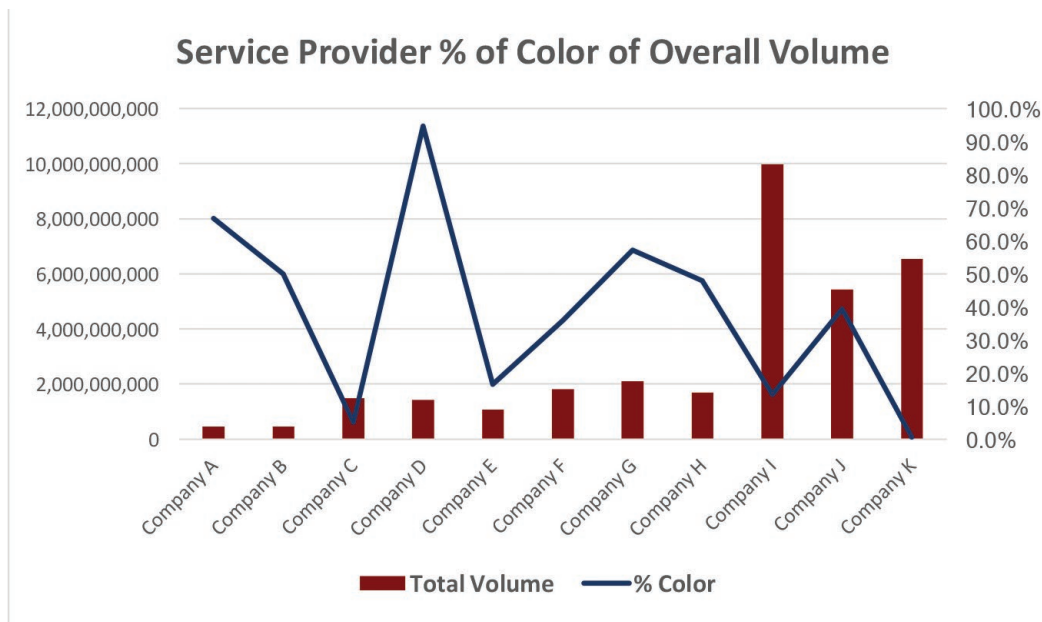


Figure 4 - % of Color vs. Overall Volume for Service Providers

Similar to print service providers, Madison Advisors classified enterprise in-plants into tiers based on total image volume produced in 2016. This classification is shown in Table 2 and Figure 5 shows the volume of color images produced as a percentage of total image volume.

| Enterprise In-plants (based on 2016 volume) | Total # of ENTs | % monochrome (average) | % color (average) |
|---|-----------------|------------------------|-------------------|
| Tier 1 (> than 1B) | 1 | 86.2% | 13.8% |
| Tier 2 (500MM – 1B) | 4 | 82.2% | 17.8% |
| Tier 3 (100MM – 500MM) | 5 | 85.1% | 14.9% |
| Tier 4 (< than 100MM) | 1 | 100% | 0% |

Table 2 – Enterprise In-plant Tiers Based on 2016 Total Image Volume

Enterprise in-plants are challenged with justifying the capital investment necessary to obtain new print engines as current equipment nears end of life or end of lease—this is typically when the outsourcing conversation occurs. The volume of documents and associated production costs are key considerations when determining whether or not to keep the operation in-house. Another factor that may be considered is the success of the organization's electronic delivery initiative since increased adoption results in lower print volumes, higher unit costs and increased postage expenses if postal discounts are lost due to inability to meet postal density requirements. Similar to the service providers in this study, output volume for in-plants does not necessarily indicate a higher use of color, as shown in Figure 5 below.

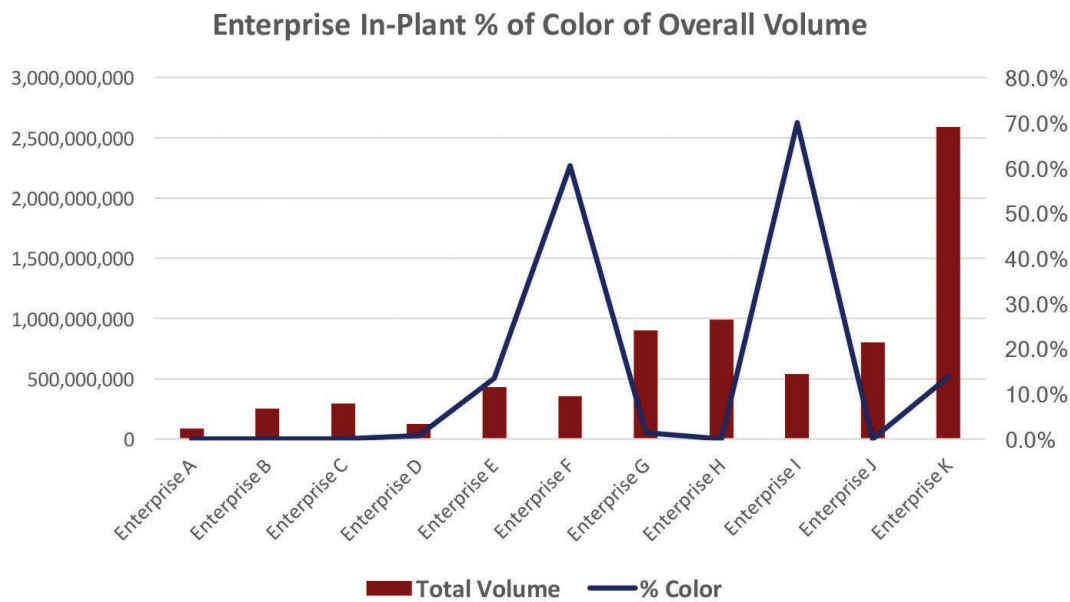


Figure 5 - % of Color vs. Overall Volume for Enterprise In-Plants

COLOR AND MONOCHROME USAGE BY VERTICAL

In 2016, approximately 15 billion color images were produced by the service providers and enterprise in-plants who participated in our research. The graph in Figure 6 shows that banks and the retail / credit card verticals produced the most color images compared to the others. While insurance is still lagging, there has been an increase in the volume of color output for transactional communications since our last study.

Color Image Volume by Vertical

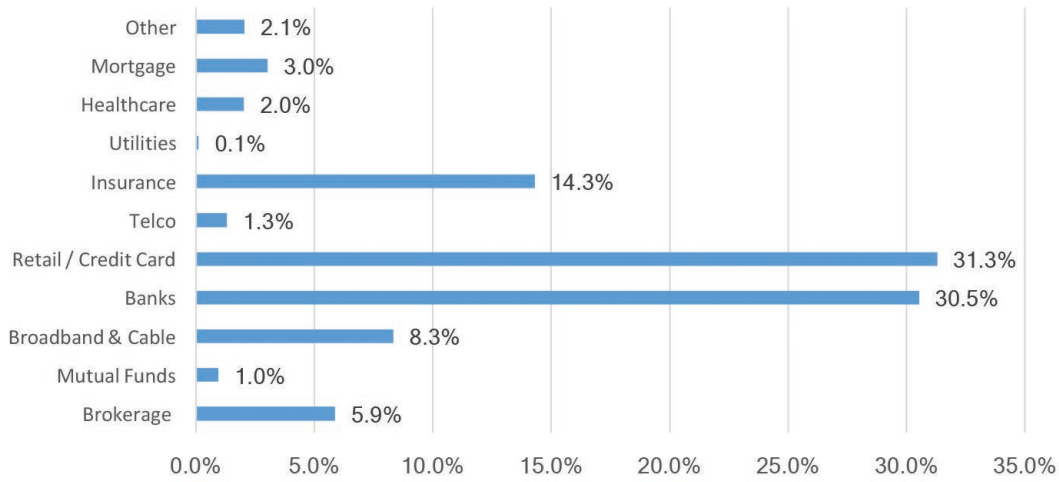


Figure 6 - Color Image Volume by Vertical (n=15.08 billion images)

Over 27 billion monochrome images were produced in 2016. Figure 7 shows which verticals produced the highest percentage of monochrome images.

Monochrome Image Volume by Vertical

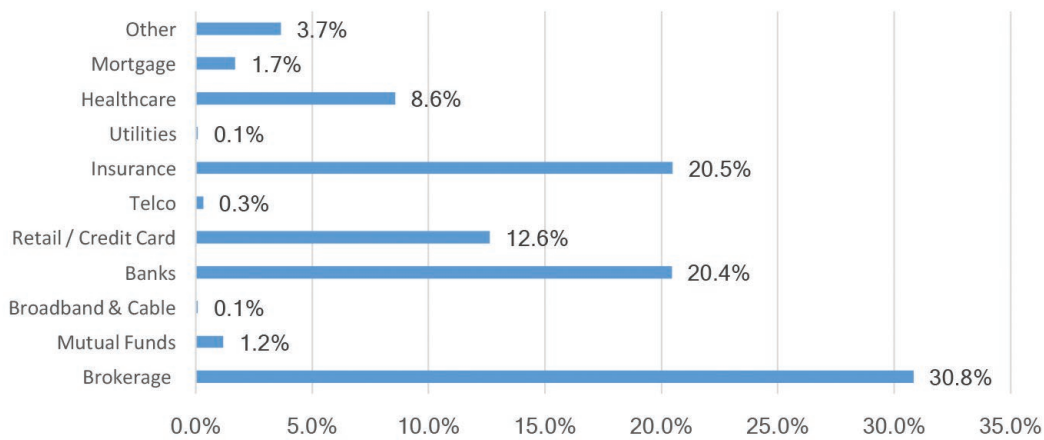


Figure 7 - Monochrome Image Volume by Vertical (n=27.0 billion images)

% Color vs Monochrome by Vertical

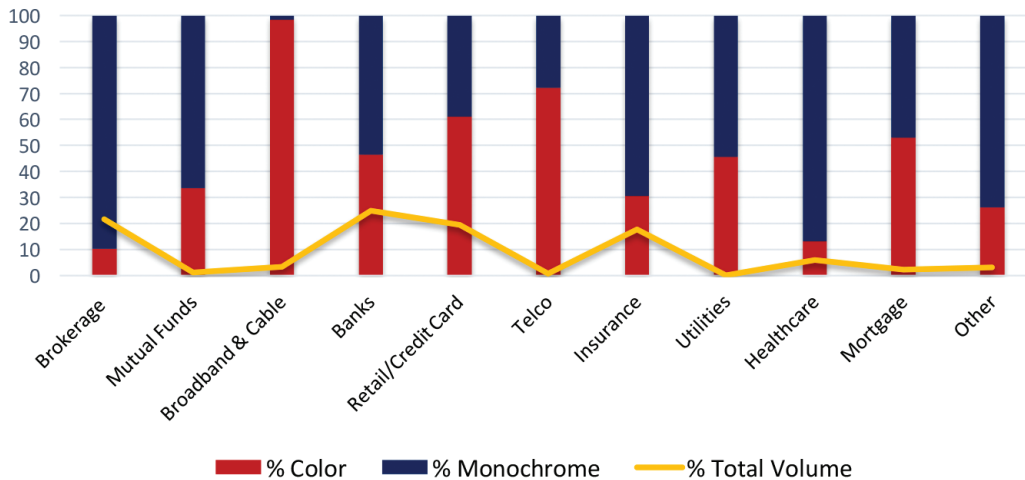


Figure 8 - % Color vs. Monochrome by Vertical

The chart in Figure 8 illustrates that color usage is not dependent on the volume of images produced. The yellow line indicates the volume of images represented by each vertical as a percentage of the total image volume (39.78 billion). With only 3.2% of the total volume, broadband and cable had 98% color usage, yet brokerage represents 21% of the total image volume but 90% of the images produced were monochrome.

OPPORTUNITIES FOR ENTERPRISE IN-PLANTS WITH COLOR INKJET

Although enterprise in-plants do not generate revenue directly from print, there are ways for these operations to benefit from the investment in color inkjet technology beyond higher production speed and lower operational costs. As noted above, color inkjet technology allows for the elimination of the dual process of creating base stock through traditional long run offset printing and overlaying variable data in a second step to create variable data communications. Investing in this technology relieves the reliance on a 3rd party vendor to supply pre-printed stock and therefore promotes greater flexibility in production schedules and improves the inventory management process.

Adding color to transactional communications can enhance customer experience in a variety of ways:

- Increases brand recognition and creates synergy between printed and digital communications with consistent look and feel
- Adds value through personalization of marketing promotions and cross-sell opportunities

- Improves customer responses and calls to action by highlighting important sections of the document to reduce or eliminate additional processing
- Increases document clarity with colorful charts, graphs and other digital graphics

While there is a lot of focus on digital transformation and creating digital experiences as a part of a multi-channel customer communications delivery strategy, it is critical to consider the important role print plays in the big picture. Print can drive consumers to a digital channel with website information, QR codes that can be scanned with a mobile app, or personalized URLs (PURLs). Interactions that begin in one channel, such as print, finish in a different channel such as web or mobile, are referred to as cross-channel. These types of interactions increase engagement and enhance customer experience by allowing consumers the opportunity to engage with a brand through their preferred channel. As examples, a statement-based marketing promotion that advertises an attractive interest rate for a new credit card may direct a consumer to a website to complete the application. A QR code on a health insurance enrollment form that is scanned with a mobile app may direct a consumer to a video that explains the different benefit packages available and provide useful instructions for completing the form.

RIGHT-SOURCING: A NEW STRATEGY FOR IN-PLANTS

Many in-plants are being forced to make a decision to continue operations or outsource print and mail to a service provider. With the advancements and capabilities of color inkjet technology available in the market today, the longevity of the engines, and the lower capital investment needed to acquire this technology, Madison Advisors believes that the conversation can pivot from outsourcing to right-sourcing. The concept of right-sourcing will allow an in-plant to collaborate with external partners and determine whether or not certain print jobs can be completed internally, or sent to its partners. For example, applications that require specialty printing and finishing that cannot be produced at the in-plant can be sent to a partner provider. With color inkjet technology, in-plants have an opportunity to produce additional volume such as marketing collateral that was previously outsourced to a 3rd party. Driving more volume back into the in-plant results in a lower cost model and a better ROI, and right-sourcing fosters a collaborative environment that allows flexibility in sharing work at peak times or bringing in additional work during down times throughout the year.

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STRATEGY FOR COLOR INKJET: NOT RESTRICTED TO PRINT OPERATIONS

A strategy for color inkjet technology should be company-wide, and support the overall customer communications management (CCM) strategy. It should include critical stakeholders such as print and mail operations, internal lines of business, marketing and the digital/mobile team. According to Forbes, *“By 2020, Customer Experience is expected to surpass product and pricing as the key differentiator for business.”* Many organizations have made customer experience a priority, and have added a new member to the C-level suite of executives, such as a chief experience officer (CXO) or chief customer officer (CCO). The CXO or CCO should also be a key stakeholder when designing the color inkjet strategy.

Madison Advisors suggests that the strategy for color inkjet be established first, before any decisions are made for hardware selection and related software technology, or before outsourcing altogether. Some important considerations include workflow and print server technology that creates efficiency via a white paper factory, job concatenation to ensure longer print runs and fewer equipment changeovers, in-line forms replacement and elimination of inserts through the use of onserts (transpromo and also referred to as statement-based marketing). Other considerations include digital pre-sorting and insertion capabilities. Once all of these factors have been taken into consideration, then technology decisions can be made.

SUMMARY

Color inkjet technology offers boundless opportunities for the transactional print industry and with the existing capabilities available in the market today, longevity of the engines, and the lower capital investment needed to acquire this technology, it is no longer a nice to have—it is a must have. Although print has become commoditized, service providers and in-plants alike need to establish a color inkjet strategy that adds value for clients and internal business lines and emphasizes the role that print can play in an omni-channel communications strategy. The transactional print data collected for this research reveals that 38% of the total image volume was produced in color, which means that there is still room for growth. For inkjet printer manufacturers this means that there is more opportunity to penetrate the transactional printing industry. Since color inkjet technology provides a lower cost of entry for those who currently lack or have limited color capability, service providers and enterprise in-plants in need of an equipment refresh should strongly consider making the investment.

APPENDIX A – ABOUT MADISON ADVISORS

Madison Advisors exists to advance the print and electronic communications objectives of Fortune 1000 companies. Madison Advisors specializes in offering context-specific guidance for a range of content delivery strategies, particularly those addressing enterprise output technologies and customer communications.

Madison Advisors offers services and expertise primarily through short-term, high-impact consulting services. With no-nonsense, quick engagements (measurable in days or weeks, not months), Madison Advisors directly helps our clients achieve very hard and specific return on investment (ROI) related to their print and electronic communications initiatives.

Madison Advisors' analysts are dedicated to technology and market research that is delivered through short-term project engagements as well as articles, publications, and presentations. We specialize in customer communication technologies including enterprise output management, content management, customer relationship management, e-billing, and infrastructure technology.

For more information about Madison Advisors, visit our web site: www.Madison-Advisors.com.

APPENDIX B – ABOUT THE AUTHORS

Kemal Carr

Under Kemal Carr's direction, Madison Advisors has established a market niche as an independent analyst & market research firm that addresses the needs of the electronic and print customer communications Management (CCM) marketplace. The firm provides retainer and project-based strategy services designed to assist clients with technology selection and alignment and business process optimization decisions.

Kemal is regularly sought out by some of the leading output technology publications to write about or comment on the industry's key issues and topics, including articles on the impact of eDelivery and Multi-channel delivery, advancement in communication technologies, and electronic document presentment. He is also asked to speak at trade events, including key sessions at Xplor's Global conference, DOCUMENT Strategy Forum, Inkjet Summit, and numerous vendor trade events.

In 2010 Carr received the Xplorer of the Year award from Xplor International at its Global Conference. The award was in recognition of Carr's "volunteer service to the Association, dedication to the Xplor mission and promotion of the interests of the electronic document systems industry at large."

Kemal earned a B.B.A. in management information systems from the University of Wisconsin and is a M.B.A. candidate in management at Texas Christian University.

Roger Tapke

Roger Tapke brings expertise to Madison Advisors from a long career in printing/mailing operations as well as operations and manufacturing within several other industries. In addition to extensive knowledge of all aspects of print, mail and presort operations, his expertise includes organizational and process analysis/improvement, team building, and succession planning.

Prior to joining Madison Advisors, Roger successfully led a major print/mail facility for more than 15 years. Under his leadership, the facility achieved MPTQM certification from the USPS and won Top Ten recognition in Industry Week's manufacturing excellence program. He developed and employed strategies around client conversions, plant/product consolidations, client service methodologies and team building that drove the organization to new levels of growth and financial performance.

Roger has an additional 25 years of operational and manufacturing experience including 16 years with General Electric where he completed their Manufacturing Management Program and was trained in many of GE's industry leading programs and techniques used to achieve superior business results.

Roger earned a B.S. in ceramic engineering from Iowa State University.

Gina Ferrara

Gina Ferrara brings more than 19 years of experience in the banking and financial services industry working as a project manager/business analyst in ecommerce, with several years focused on online banking, electronic bill payment, ecommerce and print and mail optimization. Her project management consulting experience includes print and mail operations, postal optimization and address quality, as well as multichannel delivery.

Gina helps organizations of all sizes with CCM Optimization, managing RFPs for print outsourcing and CCM hosted managed services as well as conducting best practices assessments for enterprise and service provider clients. She is a frequent speaker at notable industry conferences that include XPLOR, Document Strategy Forum and Graph Expo.

Gina earned a B.S. in accounting from Providence College.