

Document Ink Jet Imprinting 2013: An Exclusive Market

Imprinting is digitally printing after and on top of initial offset printed “shells.” If the offset print is converted to letter-sized sheets imprinting can be done via cutsheet monochrome lasers, appropriate for smaller jobs where text quality is of the essence. For medium-size jobs using roll-offset output, imprinting can be done with monochrome toner continuous feed printers. For higher volumes imprinting is to be done with ink jet print heads mounted directly onto a web offset press, a roll-to-roll configuration, and/or onto a mail table/insertter. In part because of the throughput volumes, and in part because of the customization cost, ink jet print heads are typically not seen mounted onto sheet offset presses. This report focuses on ink jet imprinting.

Figure 1 Kodak S-series imprinting example



Ink jet imprinting requires three components: ink jet print heads custom mounted onto the three means of paper transport (directly onto a web offset press, onto a roll-to-roll system, or mail table/insertter configuration), ink, and refurbished/replacement inkjet print heads.

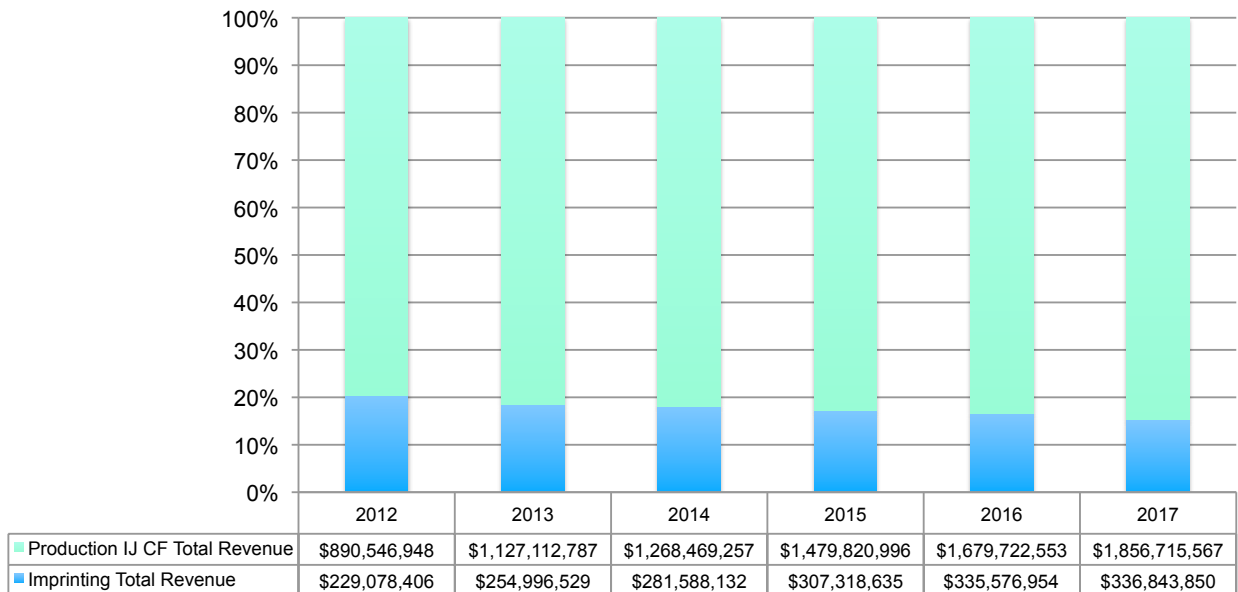
The key ink jet print head technology providers of document imprinting are Kodak, HP, and Kyocera. All offer monochrome and color imprinting modules, with color capturing the most attention on the marketing side of the product lines. Imprinting has long been perceived as a means of preserving investment in analog infrastructure, while adding value through the ability to add variable data printing. Imprinting print head modules are not inexpensive, as they have to match the throughput of the

analog systems (typically 300-800 ft/min.), and can run upwards of \$200,000 per print module (usually between 4.25” to 5” in print width).

Today there are fewer smaller and mid-size print shops deploying ink jet imprinting than in the past. The concentration of use is mainly among large print-service-providers looking to sustain and extend their web-offset press investments.

The competition for new placements is hence concentrated among those top 100-200 print providers around the world. Many of the new installations are replacement of older, lower resolution print head technology. The real competition however is coming from turnkey ink jet production printing systems, systems that sell for \$1-5M and include the web-transport, fluid stations, controllers, etc.

Figure 2 Ink jet imprinting vs. turnkey IJ systems mfr. revenue for HW, ink, service, WW

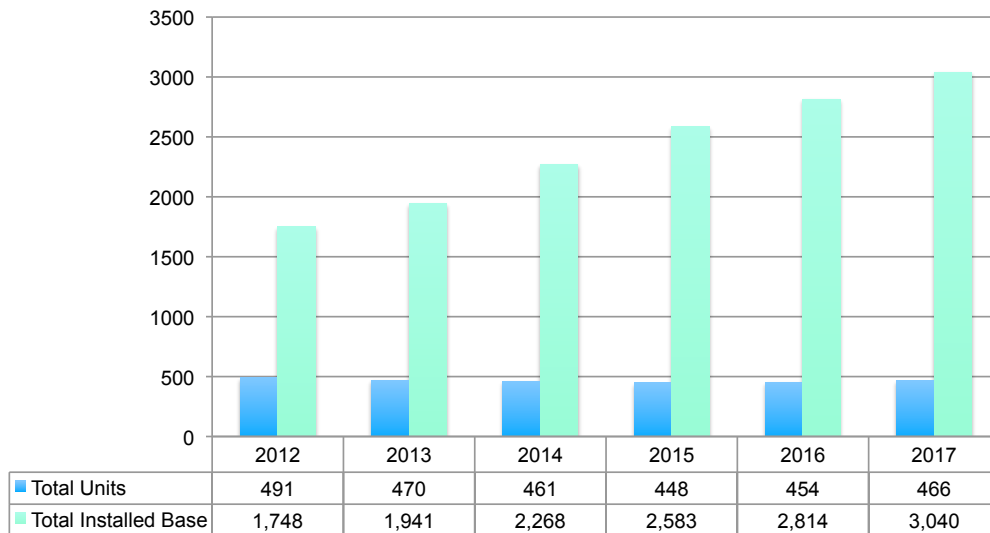


There has been some incremental business derived from four-color ink jet imprinting systems, but by-and-large these deployments are still in the early stages of development, as the learning curve to match color expectations on ink jet tends to be very different than toner or offset-based systems. The technical deployment

relating to registration between color is also not simple as every installation is custom, creating costly learning curves that don't easily diminish.

This is one of the core reasons why IT Strategies is predicting a relatively flat market for new unit sales for imprinting printheads. However, this overlooks the impact of the power of the cumulative installed base growth.

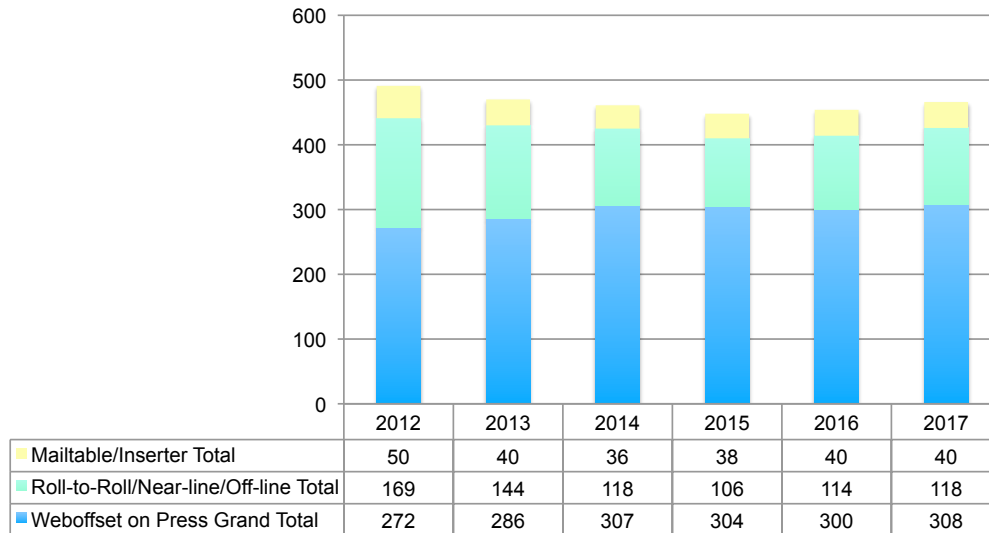
Figure 3 Imprinting Revenue by Segment, 2011 to 2016 WW



The imprinting market as it exists is comprised of three segments: web-offset imprinting, roll-to-roll imprinting, and mailtable/insertter imprinting. There is nominal growth predicted for web-offset imprinting; the other segments are predicted to decline. One reason is that the nominal cost to deploy imprinting on web-offset is shrinking on a percentage basis as new web-offset presses get more automated and expensive. Roll-to-roll systems and mailtables/insertters tend to have relative static if not declining costs, making ink jet imprinting an investment decision that is often reflected against all-new turnkey digital printing systems. For those smaller and mid-size print providers facing declining page volume demands ink jet imprinting becomes a difficult return-on-investment calculation due to the

high hardware/software capital expenditures required for ink jet imprinting systems.

Figure 4 Segmentation of the Imprinting Market by Unit Forecast, WW



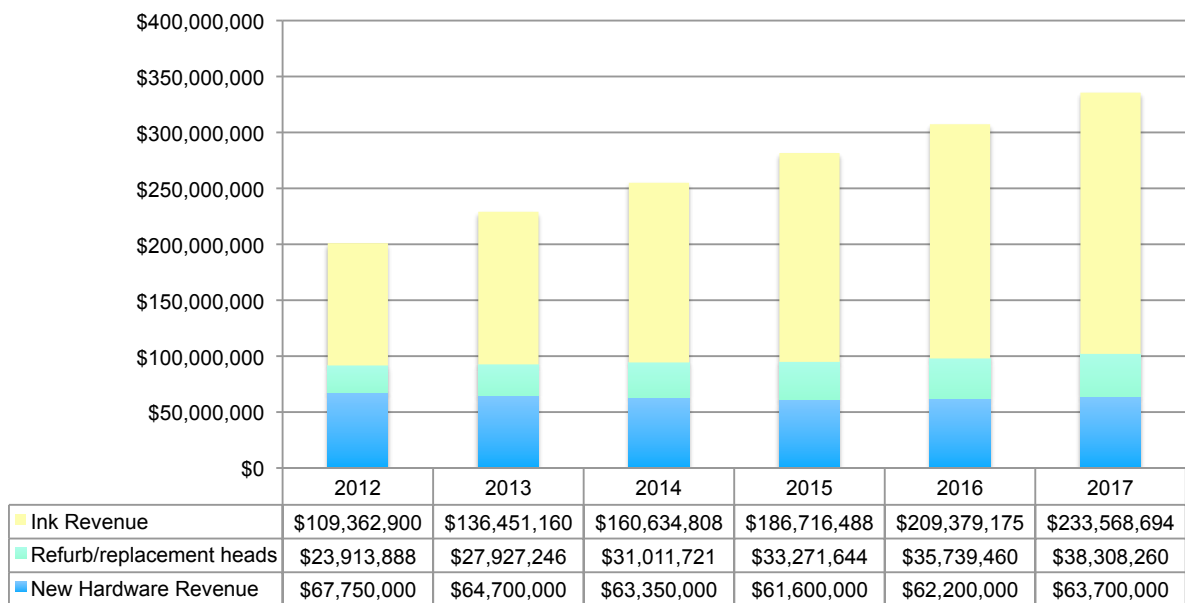
There is some limited demand for imprinting ink jet printheads mounted on inserters to customize the outside of the envelope, but IT Strategies believes demand is finite mainly because the return-on-investment cycles are so long. Just because the technology exist doesn't mean that customers are lining-up to ue and pay for it.

Ink Revenue Drives Market Growth

The proportion of revenue derived from inks is growing as the installed base changes for a number of reasons. A core reasons is that as the base churns from older ink jet printheads with very low-cost of ink (and low print-quality) to new printheads with higher resolution and higher print quality the cost of ink per liter is doubling or even quadrupling on a per liter basis. The willingness to pay for higher

ink costs (note they are still very low compared to most other ink jet print markets due to the volume used) is driven by the fact that the print quality is now good enough to compete against toner-based imprint systems that have significantly higher running costs. Imprinting is no longer what some euphemistically referred to as the “Spray and Pray” market for low-relevancy direct mail.

Figure 5 Imprinting Revenue by Source, 2012 to 2017 WW



While there is little room for hardware placement growth, one can see the attractiveness of capturing the long-term ink revenues.

What’s next for imprinting?

Imprinting’s usage is extending into new applications beyond transaction and direct mail. In particular the advent of even higher throughput printheads (with monochrome print speeds up to 3,000 ft/minute) is enabling the deployment into newspaper advertisements. Batch printed offers by delivery neighborhood are enabling publishers to charge more for advertisements. In some cases advertisers

are even able to offer true variable data with sweepstakes offers or other promotions that provide a unique code for every advertisement printed.

An even broader market opportunity exists in package printing, as that market is not under the same economic pressures as newspaper publisher/printers. Of course it is difficult to leverage variable data in packaging as it is nearly impossible to know who the ultimate buyer will be, but batch printing (short-run) and increasing use of private label branding will help to increase demand for imprinting in packaging well beyond existing ink jet date coding due to the significantly higher print quality offered by Kodak's Prosper and HP's thermal ink jet printheads than binary continuous inkjet date coding technology.

Even greater value may be in the future for imprinting with usage of specialty inks. This is likely to center first on security inks (infrared readable for example) for financial documents and high-value goods but ultimately even fragrances imprinted on select direct mail pieces – a customizable “scratch and sniff” if you will. Imprinting is a well-suited means to apply these sparingly but ultra-high value fluids.

None of these potential applications for ink jet imprinting are factored into the forecast for the simple reason that it is not possible to predict neither the technical development path nor customer implementation period (since many other ecosystem pieces need to fall in place). However, it makes the future for imprinting perhaps more interesting than the numbers might show.

Research on Emerging Print Markets
Figure 6 Ink jet Imprinting Forecast Detail by Segment, WW

	2012	2013	2014	2015	2016	2017	CAGR 2012-2017
Weboffset on Press Grand Total							
Units	272	286	307	304	300	308	3%
Average Selling Price	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Total Systems Revenue	\$37,200,000	\$39,100,000	\$41,950,000	\$41,400,000	\$40,500,000	\$41,400,000	2%
Installed Base	1,207	1,295	1,438	1,547	1,656	1,773	8%
Refurb/Head Revenue/Head	\$500	\$500	\$500	\$500	\$500	\$500	0%
Refurbs/head/year	10	10	10	10	10	10	0%
Total Refurb/Head replacement revenue	\$13,114,188	\$13,878,146	\$15,287,255	\$16,332,429	\$17,369,052	\$18,486,545	7%
AMPV	6,017,613	6,105,772	6,208,892	6,395,629	6,628,803	6,888,645	3%
Ink Consumption/Page	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	5%
Total Pages Printed	87,163,800,000	94,890,690,000	107,144,318,925	118,695,648,994	131,707,269,216	146,550,509,257	11%
Total Ink Revenue	\$76,707,900	\$92,011,560	\$110,234,928	\$126,504,475	\$143,649,308	\$162,268,210	16%
Weboffset on Press - Total Imprinting Revenue	\$127,022,088	\$144,989,706	\$167,472,183	\$184,236,905	\$201,518,360	\$222,154,755	12%
Roll-to-Roll/Near-line/Off-line Total							
Units	169	144	118	106	114	118	-7%
Average Selling Price	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Total Systems Revenue	\$23,550,000	\$20,000,000	\$16,400,000	\$14,900,000	\$16,100,000	\$16,700,000	-7%
Installed Base	483	591	644	684	735	788	10%
Refurb/Head Revenue/Head	\$500	\$500	\$500	\$500	\$500	\$500	0%
Refurbs/head/year	10	10	10	10	10	10	0%
Total Refurb/Head replacement revenue	\$10,310,200	\$13,514,650	\$15,173,201	\$16,382,268	\$17,795,752	\$19,232,573	13%
AMPV	4,112,469	4,320,116	4,364,415	4,537,118	4,527,802	4,515,754	2%
Ink Consumption/Page	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	2%
Total Pages Printed	23,826,000,000	30,633,600,000	33,729,060,000	37,243,755,000	39,916,578,750	42,701,596,238	12%
Total Ink Revenue	\$29,550,000	\$39,146,400	\$44,263,860	\$51,229,515	\$55,335,763	\$59,458,862	15%
Roll-to-Roll/Near-line/Off-line - Total Imprinting Revenue	\$63,410,200	\$72,661,050	\$75,837,061	\$82,511,783	\$89,231,515	\$95,391,435	9%
Mailtable/Inserter Total							
Units	50	40	36	38	40	40	-4%
Average Selling Price	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Total Systems Revenue	\$7,000,000	\$5,600,000	\$5,000,000	\$5,300,000	\$5,600,000	\$5,600,000	-4%
Installed Base	189	210	222	233	248	262	7%
Refurb/Head Revenue/Head	\$500	\$500	\$500	\$500	\$500	\$500	0%
Refurbs/head/year	10	10	10	10	10	10	0%
Total Refurb/Head replacement revenue	\$489,500	\$534,450	\$551,265	\$556,947	\$574,656	\$589,142	4%
AMPV	548,942	770,406	839,782	1,065,996	1,134,543	1,193,682	17%
Ink Consumption/Page	\$0.002	\$0.003	\$0.003	\$0.003	\$0.003	\$0.003	5%
Total Pages Printed	1,245,000,000	1,936,800,000	2,233,500,000	2,986,146,000	3,377,483,400	3,756,711,060	25%
Total Ink Revenue	\$3,105,000	\$5,293,200	\$6,136,020	\$8,982,498	\$10,394,104	\$11,841,622	31%
Mailtable - Total Imprinting Revenue	\$10,594,500	\$11,427,650	\$11,687,285	\$14,839,445	\$16,568,760	\$18,030,764	11%

Forecast Grand Summary, WW

	2012	2013	2014	2015	2016	2017	CAGR 2012-2017
Grand Total All Imprinting							
Units	491	470	461	448	454	466	-1%
Average Selling Price	\$137,984	\$137,660	\$137,419	\$137,500	\$137,004	\$136,695	
Total Systems Revenue	\$67,750,000	\$64,700,000	\$63,350,000	\$61,600,000	\$62,200,000	\$63,700,000	-1%
Installed Base	1,879	2,096	2,304	2,464	2,638	2,823	8%
Refurb/Head Revenue/Head	\$1,273	\$1,333	\$1,346	\$1,350	\$1,355	\$1,357	1%
Refurbs/head/year	10	10	10	10	10	10	0%
Total Refurb/Head replacement revenue	\$23,913,888	\$27,927,246	\$31,011,721	\$33,271,644	\$35,739,460	\$38,308,260	10%
AMPV	4,977,952	5,068,828	5,176,702	5,374,767	5,527,211	5,697,254	3%
Ink Consumption/Page	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	\$0.001	0%
Total Pages Printed	112,234,800,000	127,461,090,000	143,106,878,925	158,925,549,994	175,001,331,366	193,008,816,555	#NUM!
Total Ink Revenue	\$109,362,900	\$136,451,160	\$160,634,808	\$186,716,488	\$209,379,175	\$233,568,694	16%
Grand Total Imprinting Revenue -	\$201,026,788	\$229,078,406	\$254,996,529	\$281,588,132	\$307,318,635	\$335,576,954	11%