

The Wired Workforce Hiring Trends of the Printing Industry

September 2009

Strategic Assessment

Abstract

The printing industry is evolving, and with that evolution comes changing workforce requirements. With printers becoming more involved in digital services, new skill sets are required and these can be gained by hiring new employees or by training existing ones. Using Printing Industry Center research collected in 2005 as a benchmark, this study aims to show how dramatic these changes have been in the nature and number of employees hired in digital services today.

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Executive Summary

The printing industry is evolving, and with that evolution comes changing workforce requirements. With printers becoming more involved in digital services, new skill sets are required and these can be gained by hiring new employees or by training existing ones. Using Printing Industry Center research collected in 2005 as a benchmark, this study aims to show how dramatic these changes have been in the nature and number of employees hired in digital services today.

A questionnaire was developed using topics from the 2005 survey. It was administered online to a list of printers provided by the North American Publishing Company (NAPCO). The 195 firms who completed the survey hired a total of 1,209 employees in the two-year period between 2007 and 2008.

Approximately half of these positions were incremental and the other half was existing positions. The highest numbers were hired in finishing, mailing, and fulfillment (26% of all hiring); customer service and sales (25%); as well as in printing press operations (20%). Only 5% of all employees hired were in digital services, including variable data printing (VDP), database services for VDP, Web page production, graphic design, digital asset management, and computer programming. A more encouraging picture emerged when the percentage of firms who had hired at least one employee in these functions was examined. The results revealed that 18% of firms had hired at least one digital services employee within the two years prior to the study.

Using the revenue from digital services, the respondents in 2008 were split into two groups. Those with lower digital printing revenues were labeled “2008 Offset Printers” and those with higher revenues were labeled “2008 Digital Printers.” The latter group was compared to the benchmark data collected in 2005 that comprised 103 digital printing firms. The revenue profiles for the digital printers in 2008 compared to 2005 were similar. Moreover, the rate of hiring digital services employees had not changed between 2005 and 2008. Comparing the *number* of employees hired, digital printers hired 8% of their employees in digital services in 2008 versus 9% in 2005. For digital printing firms in 2008, the top two areas of hiring were for mailing and fulfillment as well as customer service functions.

The results for digital firms currently seeking employees showed that fewer digital printers had positions for administrative networking jobs and VDP set-up in 2008. These results could reflect the successful hiring by firms since 2005, or the possibility that firms might have aligned the workforce capability with the demand for digital services.

The areas of training for existing employees showed noticeable differences between 2005 and 2008. In 2005, the areas of highest training were for spreadsheets and VDP applications at 41% and 34%, respectively. Though training on spreadsheets decreased in 2008, VDP applications training had increased—nearly half of digital firms reported training their employees in VDP skills. These results reflect that the industry as a whole is moving towards using more sophisticated tools. Although the results show an increase in training existing employees in a number of skill areas, the absolute amount of investment in training is quite low. Only \$105 per employee, on average, was spent on training in 2008. Moreover, less than 10% of that training allotment was spent on digital services. Therefore, while there is good news on the amount of training activity in digital firms, the bad news is that it still is quite low compared to the “best in class” training practices of 40 hours of training per employee per year. (See the book *TQM in Action*.)

Introduction

The printing industry is changing. Andrew Papanozzi, Chief Economist at the NAPL's Printing Economic Research Center, said, "The commercial printing industry is changing structurally as well as cyclically. This means that, in addition to nationwide economic pressures, the industry is undergoing structural change in the form of redefined markets, clients, competition, labor force, critical skills, and value propositions" (NAPL's Printing Economic Research Center, 2008). Value-added services that use the latest digital technologies provide an opportunity for printers, but require a new set of skills in the workforce. This is the new "wired workforce."

The purpose of this research is to assess the changing workforce requirements in the printing industry. Adding new digital services will be a challenge for most printers. The Graphic Arts Education and Research Foundation (GAERF) identifies the nature of some of these services in the evolution of print service providers:

Due to the rapid technological changes and broadening of the scope of services provided by many of the companies in the field today, it is more commonly referred to as the graphic communication industry. Companies in the business have expanded services to include creative design, e-commerce, Web page design and hosting, mailing, fulfillment, and a host of services that provide horizontal marketing well beyond the core-printing model. This is a description that more accurately represents the broader range of what "printers" do today (The Education Summit for the Graphic Arts, 2008).

The present research determines how printing firms are adjusting their hiring practices to add digital services to their product mix.

New Skill Sets for Wired Workforce

Printers are becoming more involved in digital services and are integrating different equipment and software into their value-streams. Professor Frank Romano's 2007 article entitled "Where have all the students gone?" identifies the need for incorporating the Internet into every facet of a printing business, which requires hiring employees with new skills in these companies. To do this, printers must find employees with skills in information technology, database management, Java scripting, and digital asset management. In a related 2008 article called "The New Printing Workforce," Romano concluded that the printing industry had a skills shortage of IT-based employees.

As documented by Professor Franziska Frey and Henrik Christensen in their 2005 survey of hiring trends for digital asset management (DAM) and VDP services, fewer than 10% of employees hired by digital printing services firms were in information systems, networking, or database management for VDP and DAM. The majority of companies (83%) provided DAM and VDP training in-house with the top training areas in spreadsheets (41%) and VDP applications (34%).

Training for Digital Skills

Harvey Levenson, Department Head of the Graphic Communications Department at California Polytechnic State University, stated in an interview regarding print education, "The graphic communications industry is in a state of transition, with companies diversifying in mission and processes to address competing communication media" (Adams, 2008). Levenson goes on to say that educators have the opportunity to prepare the future leaders with the following skills that will strengthen and sustain the graphic communications industry:

- Increased knowledge on digital printing and VDP
- Increased the extent on-demand printing is offered
- Ability to acknowledge alternative media sources, such as the Internet
- Addition of value-added products and services (i.e., ancillary services)
- Increased knowledge of niche markets

Mike Grasso agrees in a 2008 article called "Navigating today's hiring minefield: Who is available & do you really want them?" As printers adapt to the changing business environment, it may require that existing employees obtain a different and/or greater expertise. As printing companies require more digital skills within the workforce, many progressive firms are retraining employees with the desired abilities. Nevertheless, they find that in some instances there is ambiguity as to what digital functions are required within the company. Howie Fenton from Graphic Arts Online states that "About one-quarter of all new hiring in the printing industry involves IT-based functions. Some printers do not always define these skill sets as IT-based. The industry needs to provide a long-term action plan, enterprises must promote solutions within the workplace, and education/training providers must broaden their approaches to traditional training" (Fenton, 2008).

Research Objective

The purpose of this research was to describe the changing hiring practices in the printing industry. Using Printing Industry Center research by Frey and Christensen collected in 2005 as a benchmark, the research presented here determines whether there have been changes in the nature and number of employees hired or being sought by print service providers. In addition, the survey also investigated the types of digital services companies offer, as well as the amount of training dollars allocated to digital services skills for existing employees. Lastly, with the inclusion of sampled digital printers and offset printers, we examined the differences in hiring by the firm's focus.

Methodology

Questionnaire

Survey questions from Frey and Christensen's *New skills for DAM and Variable Data Printing Services: Is the Printing Industry Prepared?* were utilized to gather data for the comparative analysis. These questions included:

- **Company demographics:** the location, size, revenue, and services offered
- **Skill sets and hiring practices:** conventional and digital services personnel that firms have employed or are currently seeking within the two-year period prior to the survey administration
- **Training practices:** amount spent on total training and percent of total spent on digital services
- **Workforce hiring plans**

The final wording of the survey questions can be found in Appendix A.

Procedure

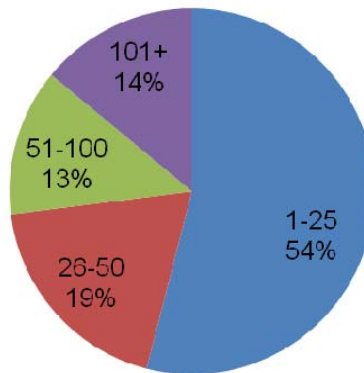
The data were gathered using an online survey of printers, conducted in November 2008. A link to the survey was distributed by email to a list of printers provided by NAPCO, the publishers of Printing Impressions, Package Printing, In-Plant Graphics, and Print Professional magazines. As an incentive to complete the survey, respondents had the option to choose one of three InfoTrends reports free of charge. The respondents also had the option to participate in a follow-up phone/email interview to help clarify responses. There were approximately 43,000 printers that were emailed the request to participate and 195 firms completed the survey (yielding a 0.45% response rate). The completed surveys were analyzed using SPSS. The standard error of a proportion for this sample size is 0.036, which yielded a 95% confidence interval of +/- 7% for the results reported as percentages.

Description of the Respondents

Company Size

Company size was measured in two ways: number of employees and by revenue for 2007. The average number of employees in all production facilities was 54.7 (the median was 22.5 employees). It is worth noting, however, that the respondent demographics were skewed towards firms with fewer than 25 employees (54%), as seen in the Figure below.

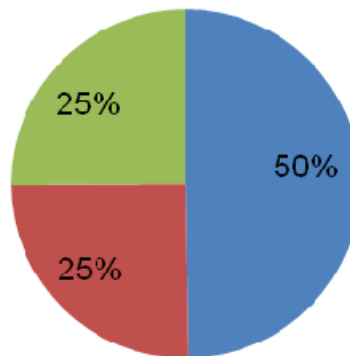
Figure 1: Number of Employees Across all Functions



N=194

Company’s revenues from the 2007 fiscal year were consolidated into three main categories and are shown in Figure 2. Of the respondents, 50% earned less than \$3 million, 25% earned between \$3 and \$10 million, and 25% earned over \$10 million.

Figure 2: Survey Respondents’ 2007 Revenue



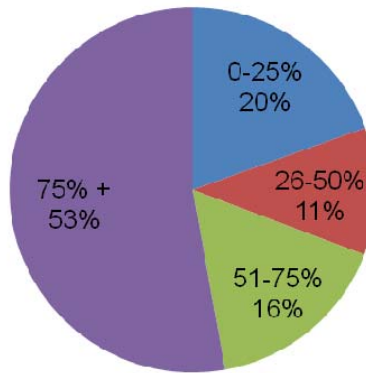
■ Less than \$3 million ■ Between \$3 to \$10 million
 ■ Over \$10 million

N=195

Local Business Focus

To assess the geographic concentration of their businesses, we asked what percentage of customers is located within a fifty mile radius of their primary production facilities. See Figure 3. Over half of the respondents reported an average of 75% or more of their customers are local.

Figure 3: Percentage of Customers Located within 50 Mile Radius



N=195

Results

The order of presentation of the results in this section is as follows: we first describe the overall frequency of responses regarding the composition of the workforce, revenue sources, digital services offered, and hiring practices. Next, we then compare these figures to the 2005 benchmark data collected by Frey and Christensen. Lastly, we present the differences between digital and offset printers on the other questions from the survey.

Current Workforce Profile

The following Table presents the number of employees within six functions: production, prepress, IT, sales, customer service, and administration. The largest percentage of employees was in production functions (61%), with 28% found in sales, customer service and administration, as well as 13% in IT and prepress functions.

Table 1: Employee Function Population

| Employee Functions | Percent of Total Employees | Mean Number of Employees |
|--------------------|----------------------------|--------------------------|
| Production | 61% | 32.8 |
| Prepress | 10% | 5.0 |
| IT | 3% | 1.5 |
| Sales | 10% | 5.0 |
| Customer Service | 8% | 4.2 |
| Administration | 11% | 5.5 |

N=194

Revenue Sources

Respondents were asked about the proportion of revenue derived from digital services and conventional print manufacturing services. Digital services were defined as VDP, database services for VPD, Web page production, graphic design, DAM, and computer programming. The majority of revenues (53%) were generated from offset printing, followed by digital printing (20%), and other services such as mailing and fulfillment (20%). Digital services represented only 6% of revenue.

The nature of the digital services provided is presented in Table 2. Graphic Design (74%) was the primary in-house digital service that companies offer. Online ordering was the second-most popular with 54% currently offering the service and an additional 27% who were planning to offer it in the near future. VDP and database management followed with 48% and 37%, respectively. The lowest frequency services were DAM, Web page production, and computer programming.

Table 2: Types of Digital Services Offered

| Digital Service | Currently Offering | Plan to Offer | Do not plan to offer |
|----------------------|--------------------|---------------|----------------------|
| Graphic Design | 74% | 4% | 24% |
| Online Ordering | 54% | 27% | 20% |
| VDP | 48% | 11% | 43% |
| Database Management | 37% | 16% | 48% |
| DAM | 23% | 10% | 69% |
| Webpage Production | 13% | 13% | 67% |
| Computer Programming | 10% | 6% | 85% |

N=195

Workforce Hiring Trends

The companies surveyed provided information about the number of new employees hired over the past two years. A total of 1,209 employees were hired by the responding firms. As shown in Table 3, 26% were in finishing, mailing, and fulfillment; 25% were in customer service and sales; and 20% were in printing press operations. The fewest number of employees hired were in estimating and planning roles (4%) and Information Technology (6%). Approximately half of these employees were hired for incremental positions and the other half was hired to fill vacancies in existing positions.

Table 3: Hiring by Job Function

| Job Function | Percent of Total Employees | Percent of firms that hired at least one employee in job function* |
|-----------------------------------|----------------------------|--|
| Finishing, Mailing, & Fulfillment | 26% | 34% |
| Customer Service/ Sales | 25% | 57% |
| Printing press operations | 20% | 37% |
| Prepress | 9% | 32% |
| IT | 6% | 18% |
| Production Management | 5% | 21% |
| Digital services | 5% | 18% |
| Estimating & Planning | 4% | 19% |

*Adds to over 100% due to multiple responses

N=195

The right-most column of Table 3 presents the *percentage of firms* that hired at least one employee in that job function. Over half of the firms had hired customer service and sales employees (57%), and approximately one-third hired printing press operators (37%); finishing, mailing, and fulfillment employees (34%); as well as prepress employees (32%). Fewer than 20% of firms hired IT or digital service employees.

Companies were asked what skill sets they were seeking in future employees. Table 4 presents the percentage of firms who were currently searching for employees with specific skill sets. The top area was customer service and sales (14%), followed by mailing (8%), VDP set-up and operation (6%), and finishing (6%). The lowest of priorities were for computer programming (1%) and photography (0%).

Table 4: Skill Sets Printers are Currently Seeking

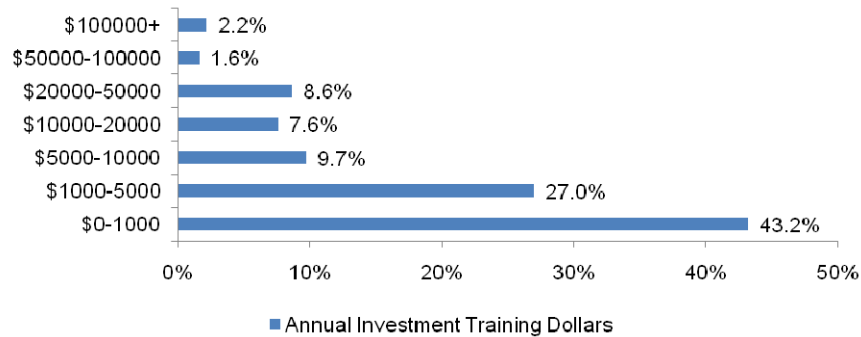
| Skill Sets | Percentage of Firms Currently Seeking |
|--|---------------------------------------|
| Customer service/Sales | 14% |
| Mailing | 8% |
| VDP set-up/operation | 6% |
| Finishing | 6% |
| Binding | 6% |
| Database & direct marketing set-up/orientation | 5% |
| Digital press operator | 5% |
| Fulfillment | 5% |
| Production workflow | 5% |
| Interactive media manager/specialist | 4% |
| Graphic design | 4% |
| IT – Administration | 4% |
| DAM set-up/maintenance | 4% |
| Conventional press operator | 4% |
| IT – Networking | 3% |
| Color mgmt. set-up/handling/maintenance | 3% |
| XML/Java/PERL/etc | 2% |
| Kitting fulfillment | 2% |
| Computer programming | 1% |
| Photography | 0% |

N=195

Investment in Training Current Employees

Many firms obtain new capabilities by retraining existing employees in the needed skills. In this survey, the median amount spent on employee training annually was \$2,000. The Figure below shows that 43.2% of companies invested less than \$1,000 annually and only 13% invested \$20,000 or more. The median amount of training per employee was \$105.

Figure 4: Annual Investment Training Dollars



N=185

When asked what percentage of the training dollars were for digital services, firms reported an average of less than 10% of it was spent for digital services annually. Table 5 presents the percentage of firms who were offering training by skill areas. The most frequently offered training was for page layout programs (46%), color management (42%), and PDF workflow (41%). The lowest frequency was found for XML/Java/Perl training (7%), JDF (8%), and DAM (8%).

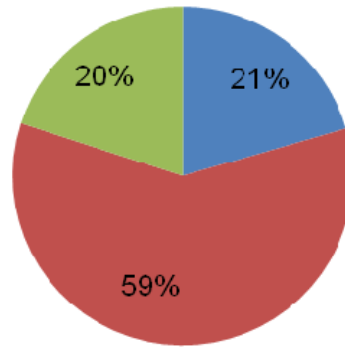
Table 5: Percentage of Companies that Invest in Specific Skills Training

| Job functions companies have provided training to existing employees | Percent of firms who trained |
|--|------------------------------|
| Page layout programs | 46% |
| Color management | 42% |
| PDF workflow | 41% |
| Digital press operation | 39% |
| Mailing | 34% |
| VDP applications | 34% |
| Spreadsheets | 32% |
| Web store front for your own company | 23% |
| Customer database management | 21% |
| IT- Networking | 20% |
| Other | 18% |
| IT- Administration | 13% |
| Customer webpage production | 13% |
| DAM | 8% |
| JDF | 8% |
| XML, Java, PERL | 8% |

N=195

Within the current U.S. economic downturn, the authors acknowledged that past hiring practices may not be the norm for the future. Therefore, we asked about the workforce hiring plans for 2009. Figure 5 shows that the majority of companies (59%) plan to keep the workforce the same size, and the remaining firms are split with half planning to reduce the workforce (21%) and half planning to grow the workforce (20%).

Figure 5: 2009 Plans for Workforce Development



- I plan to reduce workforce
- I plan to keep the workforce the same size
- I plan to grow the workforce

N=195

2008 vs. 2005 Comparisons

The benchmark data was collected in 2005 and comprised 103 responses sampled from the RIT Printing Industry Center database, which included companies across the U.S. and Canada. Specifically, those printers who considered themselves digital printers were contacted by phone and participated in a telephone survey. The 2008 survey described here surveyed a wide range of printers, not exclusively digital printers. To create a comparable sample to the 2005 data, and to identify the trends between primarily offset versus digital printers, the 2008 sample was split between companies that had low digital printing revenue (0%-9% of revenues) and printing firms with 10% or more of revenue from digital printing. The 85 firms that had 9% or less of their revenue from digital printing were labeled “2008 Offset” and the 110 firms with over 10% of revenue from digital printing were labeled “2008 Digital.” The profile of revenue sources for each group is presented in Table 6.

Table 6: Defining Offset and Digital Printer Samples

| Revenue Sources | % of Revenue 2008 Offset Printers | % of Revenue 2008 Digital Printers |
|------------------|---|--|
| Offset | 67% | 42% |
| Digital printing | 1% | 36% |
| Digital services | 3% | 9% |
| Other services | 29% | 13% |

N=195

Comparing the two groups by number of employees, the 2008 Offset firms were larger with an average of 91 employees versus 27 for the digital subsample. The annual revenue data between the two groups shows the same trend. The Table below also includes the data from the 2005 digital sample in the right-most column. These data reveal that the revenue profiles of the digital printers in 2005 and 2008 were similar¹.

Table 7: Annual Revenues of Comparison Groups

| Annual Revenue | 2008 Offset | 2008 Digital | 2005 Digital |
|------------------------------|-------------|--------------|--------------|
| Less than \$3 million | 33% | 62% | 68% |
| Between \$3 and \$10 million | 25% | 25% | 27% |
| Over \$10 million | 42% | 12% | 5% |
| N= | 195 | | 103 |

¹ The standard error of a proportion for the 2005 sample size is 0.049, which yielded a 95% confidence interval of +/- 10% for the results reported as percentages. In comparing whether there are meaningful differences between the 2005 and 2008 samples, we will use a difference of 10% as the threshold.

Hiring

Table 8 shows the comparison in percent of total employees hired in 2005 and 2008. Examining just the digital printers in the two right-most columns of the following Table, we can see that the hiring trends were similar for both years. Though not explicitly queried in 2005, digital printers in 2008 had hired a substantial proportion of all employees in the mailing and fulfillment functions in incremental and existing positions. Although digital printers hire somewhat more digital services employees than offset printers, even printing firms who are more reliant on digital printing hired fewer than 10% of employees in the digital services area in 2007-2008.

Table 8: Percent of Employees Hired by Job Function (2005 and 2008)

| Job Function | Percent of Total Employees Hired 2008 Offset | Percent of Total Employees Hired 2008 Digital | Percent of Total Employees Hired 2005 Digital |
|---|--|---|---|
| Customer Service/ Sales | 24% | 26% | 35% |
| Printing press operations | 23% | 15% | 17% |
| Prepress | 8% | 10% | 15% |
| IT | 7% | 6% | 8% |
| Production Management | 5% | 5% | 6% |
| Digital services* | 2% | 8% | 9% |
| Estimating & Planning | 3% | 6% | 7% |
| Other (Mailing and fulfillment specified in 2008) | 27% | 24% | 2% |
| Total Number hired | 756 | 453 | 285 |
| N= | 195 | | 103 |

*VDP and DAM specified in 2005

Table 9 presents the data analyzed by the percentage of firms (rather than percentage of employees) who hired at least one employee in each job function. Examining the two right-most columns, we can see a few differences between 2005 and 2008 for digital printers. In 2008, fewer digital printers hired employees in printing press operations, prepress, and IT. For digital services, customer service, and production management functions, the hiring trends were similar for both years.

Table 9: Percent of Firms Hiring by Job Function (2005 and 2008)

| Job Function | 2008 Offset Percent of Firms who hired | 2008 Digital Percent of Firms who hired | 2005 Digital Percent of Firms who hired |
|-----------------------------------|--|---|---|
| Finishing, Mailing, & Fulfillment | 38% | 32% | * |
| Customer Service/ Sales | 59% | 56% | 55% customer service (45% sales) |
| Printing press operations | 43% | 33% | 48% |
| Prepress | 34% | 31% | 42% |
| IT | 23% | 15% | 24% |
| Production Management | 26% | 16% | 18% |
| Digital services | 12% | 24% | 22% |
| Estimating & Planning | 21% | 17% | 21% |
| N= | 195 | | 103 |

* This category was not included in the 2005 survey.

In addition, it is worth noting how similar the results are in 2008 between the primarily offset versus the digital printing firms. The only exceptions were for production employees (more hired by offset firms) and digital services employees (more hired by digital firms). An exploration of significant differences between primarily offset versus digital firms in 2008 is presented later in this section.

Skills Set Sought

As the two previous Tables have presented the success of hiring employees, the next Table presents the *efforts* of firms in their search for skilled employees.

Table 10: Percent of Firms Who Are Currently Seeking Employees by Skill

| Skill Sets | 2008 Offset | 2008 Digital | 2005 Digital |
|--|-------------|--------------|--------------------|
| Customer service/Sales | 15% | 14% | 2% |
| Mailing | 6% | 8% | |
| VDP set-up/operation | 2% | 8% | 16% |
| Finishing | 6% | 5% | |
| Binding | 5% | 6% | |
| Database & direct marketing set-up/orientation | 4% | 6% | 3% |
| Digital press operator | 2% | 6% | |
| Fulfillment | 2% | 6% | |
| Production workflow | 4% | 5% | |
| Interactive media manager/specialist | 2% | 5% | |
| Graphic design | 1% | 5% | |
| IT – Administration | 2% | 4% | 30% |
| DAM set-up/maintenance | 0% | 6% | 14% |
| Conventional press operator | 4% | 3% | |
| IT – Networking | 2% | 4% | See IT Admin above |
| Color mgmt. set-up/handling/maintenance | 0% | 4% | |
| XML/Java/PERL/etc | 2% | 1% | 2% |
| Kitting fulfillment | 1% | 2% | |
| Computer programming | 1% | 1% | 1% |
| Photography | 0% | 0% | |
| N= | 195 | | 103 |

In the job categories that were comparable between the two surveys, 30% of digital firms in 2005 were seeking IT administration and networking compared to only 8% in the 2008 sample (with networking and administration combined). On the other hand, the 2008 digital printers were more likely than their 2005 counterparts to seek employees with skills in customer service and sales (14% vs. 2%).

Training Skill Sets

One of the key findings from the 2005 RIT research was that a large percentage of companies provide training in-house in VDP applications and spreadsheets. The 2008 results revealed that the percentage of digital printing firms that provided VDP training was higher than in 2005, but lower in 2008 for spreadsheet training (see Table 11). In addition, there was a higher percentage of companies in 2008 offering training in Web store front, PDF workflow, color management, and IT.

Table 11: Areas of Training for Existing Employees (2005 and 2008)

| Job functions companies have provided training to existing employees | 2008 Offset | 2008 Digital | 2005 Digital |
|--|-------------|--------------|--------------|
| Page layout programs | 33% | 56% | |
| Color management | 39% | 44% | 3% |
| PDF workflow | 48% | 36% | 1% |
| Digital press operation | 18% | 55% | |
| Mailing | 29% | 37% | |
| VDP applications | 14% | 48% | 34% |
| Spreadsheets | 34% | 29% | 41% |
| Web store front for your own company | 19% | 25% | 1% |
| Customer database management | 14% | 26% | |
| IT- Networking | 18% | 20% | 2% |
| Other | 21% | 14% | |
| IT- Administration | 13% | 13% | |
| Customer webpage production | 12% | 13% | |
| DAM | 6% | 9% | 6% |
| JDF | 7% | 8% | |
| XML, Java, PERL | 5% | 9% | |
| N= | 195 | | 103 |

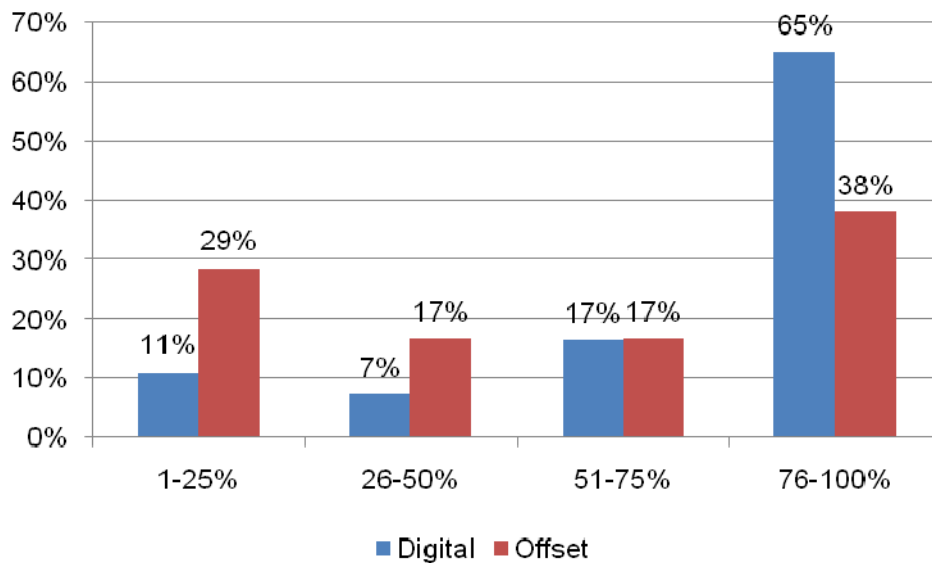
Digital 2008 versus Offset 2008 Printers

For this section, we will compare the statistically significant differences between the firms classified as digital (more than 10% of their revenues coming from digital printing) and firms classified as offset (less than 10% of revenues coming from digital printing).

Geographic Location of Customers

Digital printers had more customers within a 50 miles radius of their production sites than offset printers. Close to 65% of digital printers reported to have three-quarters or more of their customers within 50 miles of their main production facility, compared to 38% of offset printers.

Figure 6: What percentage of your customers is within 50 miles of your main production facility?

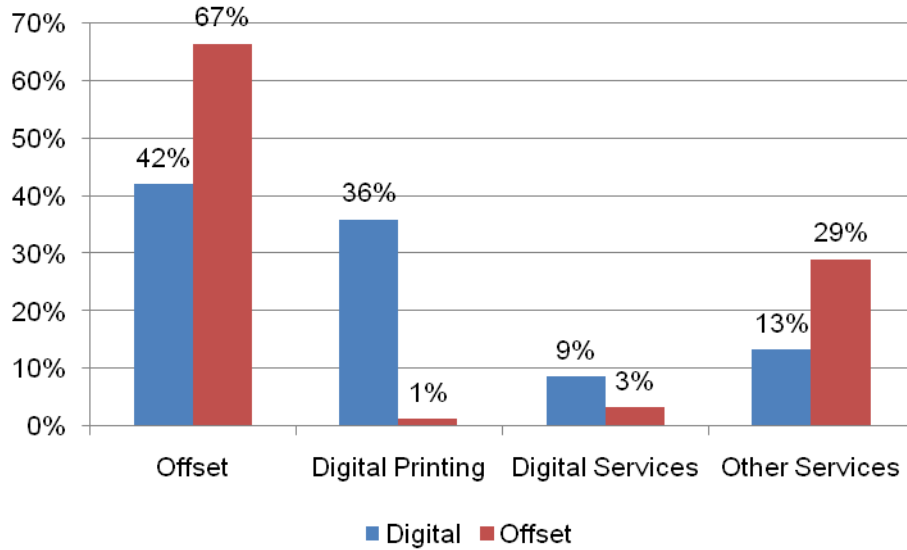


N=193

Revenue

Figure 7 shows that digital printers had significant revenue from offset printing. On average, digital printers reported that 42% of their revenue was from offset printing, compared to 67% of the offset group.

Figure 7: What percentage of your company’s revenue come from the following sources?

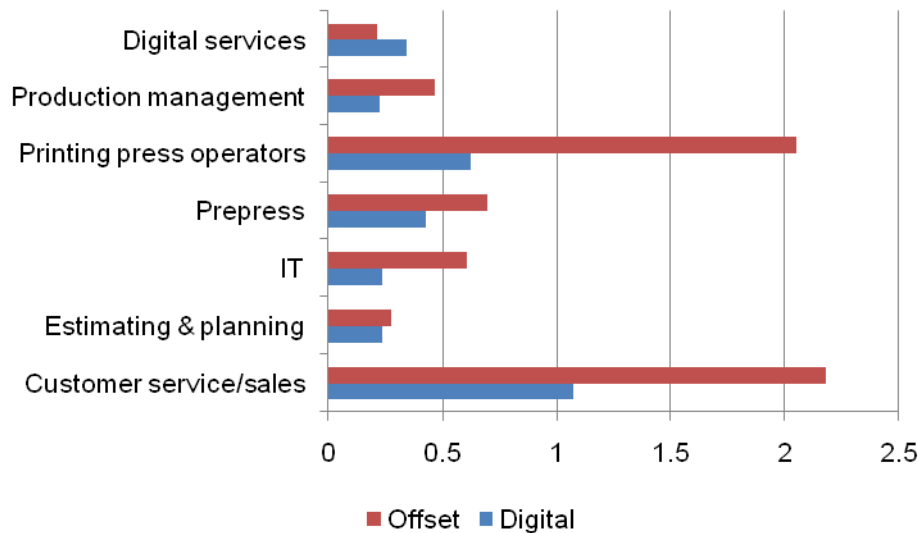


N=195

Hiring

For all categories (i.e., customer service/sales, estimating/planning, IT, prepress, press, production management, and finishing/mailling/fulfillment), offset printers have hired more people than digital printers. The sheer size of the employee workforce is larger for the offset group, which would explain this trend. The only exception is digital services, but this difference was not significant.

Figure 8: How many new employees has your firm hired over the past two years?



N=195

Skill Sets Sought

The statistically significant differences were found for the job categories of graphic design, VDP, digital press operators, DAM, and binding. In all cases, the digital printers were more likely to seek or have hired employees in these job categories.

Table 12 shows the breakdown of these significant areas:

- **Graphic design:** 5% of digital printers are currently seeking graphic designers, compared to 1% for offset printers. About 44% of digital printers have also successfully hired graphic designers compared to 21% for offset printers.
- **DAM set up/maintenance:** No offset printers were currently seeking employees here, while 6% of digital printers were. Another 10% of digital printers have also successfully hired DAM employees compared to 2% of offset printers.
- **VDP setup/operation:** Nearly one-quarter of Digital printers (22%) have successfully hired VDP employees vs. 5% for offset. In addition, there was a higher percentage of digital printers currently seeking employees in this area—8% digital vs. 2% for offset.
- **Digital press operator:** There was a high percentage (37%) of digital printers who have successfully hired digital press operators compared with offset printers (8%).
- **Binding:** Digital printers and offset printers have similar results in currently seeking binding skills (6% vs. 5%). Nevertheless, more digital printers have successfully hired bindery workers than offset printers (35% vs. 20%).

Table 12: Skill Sets Firms have Sought or Successfully Hired

| | | Digital | Offset | Total N |
|------------------------------------|-----------------------|---------|--------|---------|
| Graphic Design | Currently seeking | 5% | 1% | 6 |
| | Successfully hired | 44% | 21% | 66 |
| | Not Currently seeking | 52% | 78% | 123 |
| DAM set-up/ maintenance | Currently seeking | 6% | 0% | 6 |
| | Successfully hired | 10% | 2% | 13 |
| | Not Currently seeking | 85% | 98% | 176 |
| VDP set-up/operation | Currently seeking | 8% | 2% | 11 |
| | Successfully hired | 22% | 5% | 28 |
| | Not Currently seeking | 70% | 93% | 156 |
| Digital press operator | Currently seeking | 6% | 2% | 9 |
| | Successfully hired | 37% | 8% | 48 |
| | Not Currently seeking | 56% | 89% | 138 |
| Binding | Currently seeking | 6% | 5% | 10 |
| | Successfully hired | 35% | 20% | 55 |
| | Not Currently seeking | 60% | 75% | 130 |

N=195

Training

The total amount of funding spent by the company on training, as well as the amount per employee, was not significant. Nevertheless, the percentage of training dollars allotted for digital services was significant as digital printers budgeted 39.5% of total training dollars for digital services, while offset printers allotted only 8.3%.

There were only a few skill areas where training was provided. The only significant categories were VDP applications, page layout programs, customer database management, and digital press operation. In each of these categories, digital firms had a higher percentage of printers that trained in these areas than offset printers.

Services Offered

Services offered were broken down into specific categories and statistically significant results were found for VDP, database management, graphic design, DAM, and online ordering. The question gave respondents the option to choose if they had offered a specific service for 5 or more years, 2-4 years, within the last year, if they were planning to add, or if they did not plan to offer the service.

- **VDP:** The majority of digital firms are already offering VDP, with 72% currently offering VDP services and 8% planning to add it in the future. Only 17% of offset printers offered VDP services. In the future, 71% of offset printers reported that they do not plan to offer this service while 13% were planning to add it at some point.
- **Database management:** Like VDP, more digital printers offer database management services (45%) than offset printers (26%). When asked if they were planning to add the services, a similar percentage of both groups indicated “yes” (16% digital and 17% offset).
- **Graphic design:** 84% of digital printers offer graphic design services compared to 60% for offset printers. Almost all remaining offset printers (34%) were not planning to offer graphic design in the future compared to 15% of the digital printers.
- **Digital Asset Management (DAM):** 30% of digital printers are currently offering the service, while offset printers have 12% offering DAM services. Digital *and* offset printers had 9% reporting that they were planning to add DAM services in the future. An interesting finding is that 61% of digital printers are not planning to offer DAM services while 50% of offset printers are not planning to offer DAM services.
- **Online ordering:** The percentage of digital printers offering online ordering was more than double that of offset printers (70% vs. 33%). Many remaining offset printers do not plan to offer online ordering (37%) versus only 7% of digital printers.

Table 13: Services Currently Offered

| | Digital | | | Offset | | |
|---------------------------------------|-----------------|-----------------|----------------------|-----------------|-----------------|----------------------|
| | Currently offer | Planning to add | Do not plan to offer | Currently offer | Planning to add | Do not plan to offer |
| VDP | 72% | 8% | 20% | 17% | 13% | 71% |
| Database Management | 45% | 16% | 40% | 26% | 17% | 58% |
| Webpage production | 24% | 14% | 63% | 18% | 12% | 71% |
| Graphic design | 85% | 9% | 15% | 60% | 6% | 34% |
| Digital Asset Management (DAM) | 30% | 9% | 61% | 13% | 9% | 50% |
| Online ordering | 70% | 23% | 7% | 33% | 31% | 37% |
| ADD Computer programming | 13% | 7% | 80% | 6% | 4% | 91% |

N=195

Discussion

The major finding of this research is that there is little change in the hiring of digital services employees by printing firms in 2005 and 2008. Comparing the *number* of employees hired, firms with higher than average digital printing revenues hired 8% of their employees in digital services in the two-year period ending in 2008 versus 9% in 2005. When comparing the percentage of firms hiring, a similar conclusion can be made: 22% of digital printers hired employees in digital services in 2005 versus 24% in 2008. In addition, the hiring of IT employees was approximately the same for both years. The largest percentage of the employees hired in 2008 was for customer service and sales as well as mailing and fulfillment functions. Hiring in these two areas provide the support functions necessary for becoming a marketing services provider.

The results for digital firms *currently seeking* employees revealed that more digital services firms in 2008 were seeking customer service and sales employees than in 2005. However, for other skill sets, the trends were reversed. In 2008, there were fewer firms seeking employees in digital services specializing in IT administration and networking, VDP set-up, and DAM set-up than in 2005. These results could reflect the successful hiring by firms who were seeking those skill sets in 2005 and had hired them by 2008. These firms may have reached the critical number needed for their digital services business. Another explanation could be the economic downturn that worsened in 2008 that may have suppressed job growth. As noted earlier, only 20% of the 2008 sample of printers was planning to hire more employees in 2009. A third explanation could be that IT systems have progressed to include more automated features that make them more “stable” than a few years ago and easier to install and maintain. This might reduce the demand for more “keepers of the machines.”

The other way firms acquire digital service expertise is to train existing employees in new job skill areas. The areas of training of existing employees showed some differences between 2005 and 2008. In 2005, the most frequently observed areas of training were for spreadsheets and VDP applications at 41% and 34%, respectively. Though training on spreadsheets decreased in 2008, VDP applications training had increased—nearly half of digital firms reported training their employees in VDP skills. This could be interpreted as printers moving towards more sophisticated VDP applications.

In addition, more digital firms in 2008 provided training for existing employees in color management (44%), PDF workflow (36%), and IT networking (20%). While not directly queried in 2005, we found that 26% of digital printers in 2008 offered training in database management. Our results reveal a smaller percentage of digital firms offering training in IT and database management when compared to the results published in the 2008 NAPL white paper “Staffing for Profitability.” In the NAPL survey, two-thirds of firms provided training in IT and over 80% provided training for database management. The NAPL data were from a select group of printers from their 2007 survey of digital services and may not be comparable to the sample in the current study.

Though these results show an increase in training of existing employees in a number of skill areas, the absolute amount of investment in training is quite low. Only \$105 per employee, on average, was spent on training in 2008. Moreover, less than 10% of that training allotment was spent on digital services. Therefore, while we have good news on the amount of training activity in digital firms, the bad news is that it still is quite low compared to the “best in class” training practices where the goal is 40 hours of

training per employee per year. (See the book *TQM in Action*.)

Given the greater variety of printers surveyed in 2008 versus 2005, we can compare the results of printers who were more reliant on offset printing to those more reliant on digital. There were a few differences between these groups in hiring consistent with their business focus. The firms who had higher digital printing revenues hired more digital services employees than those with higher offset revenues. On the other hand, those with higher offset printing revenues in 2008 hired more IT and production management employees than their digital counterparts. When examining the results by firms *currently seeking* employees, there were very few differences between the two groups in 2008. In terms of training of existing employees, more digital firms provided training than offset firms in page layout programs, digital press operation, VDP applications, and customer database management. The only area where more offset firms provided training was in PDF workflow, which is now the standard for handling digital assets for many printing firms.

The expansion of digital services across all types of printing firms has maintained a steady need for employees with these skills. Printers are adding new employees and retraining existing employees with a primary emphasis in variable data printing. The importance of creating smarter direct marketing materials is necessary given the projected drop in direct mail spending from nearly \$50 billion in 2008 to less than \$30 billion in 2013 (Rochester Democrat and Chronicle, 2009). The only programs that will be maintained are those that eliminate the waste of the “spray and pray” models of direct marketing as do personalized marketing efforts. As many printers are investing in the complementary mailing and fulfillment services, they are adding to the fuller range of services that are part of successful personalized marketing programs. As is mentioned in a quote from the NAPL white paper “Staffing for Profitability,” starting slow is the way to go: “Start with mailing because it is easy...Basic mailing forces you to excel at quality control.”

Lastly, it was surprising to find that other major digital services, including digital asset management and database management, are not receiving as much attention as VDP services. In fact, over half of those surveyed currently not offering DAM or database management do not plan to offer it in the near future. These data may be interpreted in one of two ways—printers are honing their areas of competitive advantage and deciding not to participate in the digital services arena, or they are reluctant followers who are overwhelmed by the nature of the change required to add digital services.

This material is prepared specifically for clients of InfoTrends, Inc. The opinions expressed represent our interpretation and analysis of information generally available to the public or released by responsible individuals in the subject companies. We believe that the sources of information on which our material is based are reliable and we have applied our best professional judgment to the data obtained.

Appendix A—EDSF 2008 Survey

Q1 I have read the information above and attest that I am willing and able to take the survey:

- Yes (This will allow you to start the survey)
- No (This will take you to a page where you can exit the survey)

Description of your firm

Q2 What is your title?

Q3 Which of the following best describes your company's 2007 revenues?

- Less than \$3 million
- Between \$3 to \$5 million
- Between \$5 to \$10 million
- Between \$10 to \$15 million
- Between \$15 to \$20 million
- Between \$20 to \$30 million
- Between \$30 to \$40 million
- Between \$40 to \$50 million
- More than \$50 million

Q4 Does your company have multiple production facilities?

- Yes
- No

Please answer the remaining questions for your primary production facility.

Q5 What percentage of your customers are located within 50 miles of your primary production facility?

% _____

Q6 How many employees are currently in your primary production facility across all functions?

Number of employees _____

Q7 How many employees are in each of the following functions?

Production: _____
 Prepress: _____
 IT: _____
 Sales: _____
 Customer Service: _____
 Administration: _____

The following questions will ask you about digital services your firm provides to customers.

Digital services include the following: variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming.

Q8 What percentage of your company’s revenue comes from the following sources? Please enter numbers that add to 100.

Offset printing (%) _____
 Digital Printing (%) _____
 Digital services (%) _____
 Other Services (mailing, fulfillment, etc) (%) _____
 TOTAL _____

Q9 Please indicate how long your firm has been offering the following services or if you are planning to add the service.

| | 5+ years | 2-4 years | Within the last year | We're planning to add | Do not plan to offer |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| VDP | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Database Management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Webpage Production | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Graphic Design | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DAM | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Online ordering | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ADD Computer programming | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The following questions will ask you about digital services your firm provides to customers. Digital services include the following: variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming.

Hiring Practices

Q10 How many new employees has your firm hired for each of the following functional areas over the past two years? For each area where you have hired new employees, identify how many were filling an incremental position and/or how many were filling an existing vacancy.

Total Number hired:
 Customer service/Sales _____
 Estimating & planning _____
 IT _____
 Prepress _____
 Printing press operators _____
 Production management _____
 Digital Services _____
 Finishing, mailing, and fulfillment _____
 TOTAL _____

Number in incremental positions

Customer service/Sales _____
 Estimating & planning _____
 IT _____
 Prepress _____
 Printing press operators _____
 Production management _____
 Digital Services _____
 Finishing, mailing, and fulfillment _____

Number filling an existing vacancy

Customer service/Sales _____
 Estimating & planning _____
 IT _____
 Prepress _____
 Printing press operators _____
 Production management _____
 Digital Services _____
 Finishing, mailing, and fulfillment _____

The following questions will ask you about digital services your firm provides to customers. Digital services include the following: variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming.

Q11 For the above positions, please identify all of the specific skill sets your firm has sought or have successfully hired.

| | Currently Seeking | Successfully Hired | Not seeking |
|--|--------------------------|--------------------------|--------------------------|
| Customer Service/sales | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Graphic design | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Photography | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Interactive media manager/ specialist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| IT - Administration | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| IT - Networking | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Computer programming | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Database & direct marketing set-up/operation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DAM set-up/maintenance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VDP set-up/operation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| XML/Java/PERL/etc | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Production workflow | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Color management set-up/handling/maintenance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Digital press operator | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Conventional press operator | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Finishing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Binding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fulfillment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | |
|---------------------|--------------------------|--------------------------|--------------------------|
| Kitting fulfillment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mailing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Other skill sets your firm has sought:

Q12 List or briefly describe your successful recruitment strategies below:

The following questions will ask you about digital services your firm provides to customers. Digital services include the following: variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming.

Training Practices

Q13 Approximately how much does your company invest annually in training of existing employees? Please enter whole numbers with no decimals.

\$ _____

Q14 Of this amount, what percentage is allotted for digital services training such as variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming?

% _____

Q15 Please indicate in which specific skill areas you have provided training to existing employees in the last two years. (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Spreadsheets | <input type="checkbox"/> Customer database management |
| <input type="checkbox"/> VDP applications | <input type="checkbox"/> Color management |
| <input type="checkbox"/> DAM | <input type="checkbox"/> Digital press operation |
| <input type="checkbox"/> Page layout programs (InDesign, Quark, etc) | <input type="checkbox"/> PDF workflow |
| <input type="checkbox"/> IT - Networking | <input type="checkbox"/> JDF |
| <input type="checkbox"/> IT - Administration | <input type="checkbox"/> Customer webpage production/creation |
| <input type="checkbox"/> XML, Java, PERL | <input type="checkbox"/> Web store front for your own firm |
| <input type="checkbox"/> Mailing | <input type="checkbox"/> Other (please specify below) |

Other:

The following questions will ask you about digital services your firm provides to customers. Digital services include the following: variable data printing (VDP), database services for VPD, web page production, graphic design, digital asset management (DAM), and computer programming.

Workforce plans

Q16 In these challenging economic times, many companies have announced plans to reduce their work force. Do you plan to reduce your work force in 2009, keep it the same, or grow it?

- I plan to reduce workforce
- I plan to keep the workforce the same size
- I plan to grow the workforce

Q17 If “reduce”, please describe the strategy you’ll use to select employees to lay off. Examples of strategies include closing one shift, closing one office, offer retirement buy-outs, selection based on seniority or hiring date, selection of specific job functions, performance history, etc.

Q18 Thank you. As a thank you gift, please select the InfoTrends report of your choice from those listed below.

- InfoTrends analysis on the Ricoh acquisition of IKON
- InfoTrends TransPromo Hardware Analysis
- InfoTrends Drupa Final Wrap-up Show Review

Q19 Enter your email address for delivery.

E-mail _____

Q20 If you’d like to receive a copy of the results, please check “yes” below.

- Yes
- No

Q21 Would you be willing to participate in a short follow-up conversation with an RIT student?”

- Yes
- No

Thank you for your participation. We appreciate your time and opinions.

Please click SUBMIT to record your answers.

Thank you for your time.

Please click SUBMIT to exit the survey.

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About the Electronic Document Systems Foundation (EDSF)

Founded in 1996, The Electronic Document Systems Foundation (EDSF) is the only foundation dedicated to enhancing the value and relevance of document and graphic communications worldwide. As a nonprofit, tax-exempt international charitable organization, our goals are to be a catalyst for education and research initiatives and to increase awareness of the emerging trends and issues that influence the industry.

The Foundation engages in programs designed to attract the best and brightest to the industry. By granting scholarships, fostering education, promoting research, recognizing leaders, encouraging innovation, and garnering and disseminating knowledge, we are helping build the next generation of digital content and delivery professionals.

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