

On Demand Printing & Publishing Consulting Service

September 2003

The Future of Mail & Transaction Documents: Overview of a CAP Ventures Multi-Client Study

Introduction

In May 2003, CAP Ventures published a multi-client research study entitled "The Future of Mail & Transaction Documents." The full research study, including all of the text, graphics, presentation material, questionnaires, and tabulated data has been made available to the companies that purchased the multi-client study. These companies also had the opportunity to review the questionnaires and provide input. The tabulated data for the study not only contains the survey's responses, but also a division of those responses by key identifiers such as company size, type of company, and technology adoption. For consumers, the demographics included age, income, and whether or not they had home Internet access.

In this overview document, we are publishing a subset of this information to clients of CAP Ventures' On Demand Printing & Publishing Consulting Service. The document that you are reading contains a high-level overview of the full research study. The complete report is available for purchase. For more information, please contact Stewart MacDonald at (781) 871-9000, ext. 175 or via e-mail at stewart_macdonald@capv.com.

Executive Summary

Transaction documents and direct mail have been a significant part of mail volume for decades. With the rise of online bill presentation, online bill payment, and auto-debit schemes, as well as other forms of direct marketing, there is a natural concern for the survival of postal mail and the related print volume. Today's market is competitive, with increasing pressures on business and consumers to become part of the connected, online world. Transaction documents and direct mail have been printed and mailed for years, so how does the intrusion of the Internet and electronic banking affect these important applications for the printing business?

When CAP Ventures launched this study, we were curious about the impact of online bill presentation and payment as well as changes in direct marketing. We were concerned with how consumers perceived online bill viewing and payment and what preferences they had concerning direct marketing.

Other concerns arose from the September 11th terror attacks and the discovery of anthrax in tainted letters within the postal system. We wondered if these factors would fundamentally change the way that consumers viewed traditional

CAP Ventures is a strategic consulting firm for providers and users of business communication technologies and services. We deliver key research, analysis, forecasting, benchmarking, and strategy recommendations to make a competitive difference in our clients' businesses. Additional information about CAP Ventures is available on the Web at www.capv.com.

Headquarters

CAP Ventures, Inc.
600 Cordwainer Drive
Norwell, MA 02061
Phone: 781 871 9000
Fax: 781 871 3861
E-mail: info@capv.com
www.capv.com

Europe

CAP Ventures, Ltd.
3rd Floor, Sceptre House
7-9 Castle Street
Luton, Bedfordshire,
United Kingdom LU1 3AJ
Phone: +44 1582 400120
Fax: +44 1582 411001
E-mail: euro.info@capv.com

Japan

G.S.M. Corporation
Hiroo Office Building
1-3-18 Hiroo Shibuya-ku
Tokyo 150-0012 Japan
Phone: +81 3 5475 2663
Fax: +81 3 5475 2710
E-mail: yoshida@gsm.to
www.gsm.to

This Material is prepared specifically for clients of CAP Ventures. 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.

methods of paying bills and dealing with marketing messages. In addition to consumers, we also wanted to obtain the views of document owners and service providers.

Across all of our surveys, we found that there was a strong commitment to paper-based communications, but that over time, consumers and application owners believe the process of printing and mailing documents will give way to online delivery. Transaction documents such as invoices, statements, trade confirmations, and proxy statements will be the first to move online, followed by direct mail that supports marketing efforts. The timing, however, will be farther out in the decade than analysts originally envisioned.

Part of this delay has to do with consumers' willingness to go online at home to perform routine household administrative functions, like bill viewing and bill paying. Many consumers who pay bills online still print out hard copy documents for their own records. Part of the blame for this delay is also due to a lack of investment in the infrastructure needed to support the secure Internet delivery of transaction documents.

Consumers increasingly expect their direct marketing pieces to be personalized regardless of how they are delivered. In return for information of use to them, consumers are willing to opt into sharing data about themselves.

When consumers receive marketing collateral materials inserted with their bills or displayed online, they also expect that information to be relevant to their own interests. As Internet adoption increases in the home and as consumers become more comfortable with online bill viewing and payment, the potential for companies to reduce their current print and mail budgets becomes real. The requirement for Web and direct mail campaigns is with us today, and the demand for this type of marketing approach will grow in the future.

Another factor impacting the presentation method and appearance of transaction and direct mail documents is the availability of digital printing devices that make personalization easier and less expensive. Companies and service providers who are early adopters of technology are looking for ways to use color in their documents in a cost-effective manner. Color enhances both marketing messages and speeds payments by drawing attention to key areas such as the amount due. The use of personalization, as a standalone technology and in combination with the use of color, also has an impact on the way that transaction and direct mail documents are presented.

For technology vendors, there is a need to provide education to companies that produce transaction and direct mail documents. These companies must be educated about how to position re-engineered transaction documents so they evolve into collateral marketing documents, and they must also be taught to understand the value of personalized, paper-based direct mail.

Through the use of personalization and message targeting, traditional cost metrics associated with transaction and direct mail documents will be significantly changed. Service providers that support transaction documents and direct mail need to invest in new technologies, or risk losing market share and business. There are many new services to be provided, including re-engineering of legacy documents, the addition of color to legacy documents, personalization of legacy documents, and re-purposing documents for multi-channel output.

While transaction document and direct mail document owners are investigating alternative document delivery paths and enhancements to their paper-based delivery methods, some printed pages are migrating from centralized print environments to decentralized print environments. This migration occurs for several reasons, including home-based printing of e-delivered documents. We believe this trend will continue, with a net reduction of pages produced on centralized printers in the future.

Major Conclusions and Data Points

As a quick overview, major points are included under the following headings.

Business Investment & Growth

- Growth is predicted for digital printing as well as color printing. Many service providers already have digital color equipment.
- High-speed digital color (60+ppm) was identified as the top investment choice.
- Roll-fed black & white was identified as the least planned investment choice.
- Capital investments are generally tied to opportunity.
- Print service providers are not bullish about investments.
- Many service providers fail to make a clear connection between planned investments and what they describe as opportunities. Many do not link investments required in new software to revenue from new services.
- Opportunities exist for companies that offer integrated solutions—Web, print, content repositioning, etc.
- Service providers must be educated on how to meet requirements of document owners so they can link the opportunity to services and solutions.
- Adding marketing messages to transaction documents is a significant opportunity.
- An opportunity remains to help companies more effectively design existing transaction documents to reduce overall costs.
- Multi-channel direct marketing campaigns constitute a significant growth opportunity.
- By 2005, fewer than 60% of the companies surveyed plan to offer electronic bill presentment (EBP) and electronic bill presentment and payment (EBPP) services.
- Printed transaction documents will decrease very soon, and direct mail will increase in the short-term. Tipping points towards viewing are further out than originally expected. Lack of investments in infrastructure will delay conversion.

Business-to-Business (B2B) & Business-to-Consumer (B2C) Communications

- Document owners must be educated on consumer preferences. There is a high preference for personalized messaging.
- Consumers prefer highly personalized information and will increasingly migrate towards the Web.
- The value of paper and the printed document must be actively sold.
- A gap exists between consumer preference and the views of document owners.
- Most variable data jobs are simple. Some increase in complexity is predicted over time.

- Digital printing and digital color use will increase in transaction and direct mail documents, but 39.5% of transaction document owners say they will not be printing any of their output in color by 2007.

Vendors

- Vendors should lobby for security of mail, which is the largest destabilizing variable.
- Vendors should educate businesses about client preferences and importance of integrated, personalized communications.
- An opportunity exists to increase adoption of EBP and EBPP if a solutions vendor were to offer a turn-key solution that is easy to implement and of low cost. We believe the right value proposition would find a market in offering biller direct or consolidated services. Such a solution would have to be “productized” and be marketed to small or medium-sized businesses.

EBPP & Direct Mail

- No major changes in direct mail trends have occurred due to the events of 9/11. There has, however, been a slight increase in self-mailers, and this trend is expected to continue.
- Paper-based communications remain strong, but will decrease over time.
- Failure of consolidators in the transaction space to pick up a wide range of companies leaves many without an implementation path. The cost of implementing a program is often too high to justify, and many companies are left without a good choice for offering EBP or EBPP.
- When asked what type of companies or organizations transaction document owners would be comfortable working with to accomplish bill presentment over the Internet, the U.S. Postal Service received the highest ratings.

Impact of the Internet

- Transaction documents will move more quickly than direct mail documents. Internet home adoption will impact both over time.
- Millions of transaction pages have already migrated to the desktop. Many pages are not printed and have just changed location, and this trend will continue.
- As broadband access to the Internet increases, so will demand for EBP, EBPP, and e-mail direct marketing.

Surveys with 326 Consumers

- Each customer pays an average of 11.8 bills per month.
- 69% of consumers prefer that companies contact them with direct mail for marketing and promotional.
- The same percentage (69%) prefer to receive “highly personalized” direct mail, but only 36% claim to receive direct mail that is personalized and useful.
- Only 38% are not concerned with the security of the U.S. postal service as it relates to terrorist attacks such as Anthrax contamination.
- 62% claim that security concerns with the U.S. Postal Service encourage electronic viewing and handling of bills and other transaction documents.

Surveys with 327 Transaction Document Owners

- Mean number of bills and statements generated per month = 318,200
- Mean number of bills and statements that recur = 43.6%
- Mean number of customer support calls per month related to transaction documents = 1,183
- Mean cost per customer support call = \$13.80 (almost \$200,000 a year)
- Mean number of pages printed per month on transaction documents = 4,218,400

Surveys with 152 Direct Mail Document Owners

- Mean amount spent on direct mail = \$725,342
- Mean amount spent on telemarketing = \$166,095
- Mean amount spent initially making e-mail marketing system operational = \$668,145

Surveys with 421 Print Service Providers

- Mean annual capital equipment budget = \$320,500
- Mean total transaction revenue = \$27,522,200
- Mean expected change in transaction document income = 0.4%
- Mean total revenue from direct mail = \$9,306,100
- Mean expected change in direct mail income = 0.5%
- Mean percent of total revenue from direct mail that is from digital printing = 28.1%

Methodology and Goals

The objective of The Future of Mail & Transaction Documents study is to provide document technology vendors, service providers, and document owners with critical information to guide the development of product/service portfolios as it relates to transaction documents and direct mail. We explored the issues behind the technologies, such as online bill presentment, online bill payment, the rise of a new set of standards for information interchange, and changes in the available print technologies, as well as how consumers are reacting to them. We also looked at how transaction documents and direct mail distribution patterns are impacted by the increasing pervasiveness of the Internet as a business tool.

This study focuses on transaction documents that are used as part of internal operations, supplier management, and customer procurement, as well as customer-facing transaction documents that can be leveraged to increase customer retention, loyalty, and satisfaction. It also focuses on direct marketing and direct mail documents that are generally designed to persuade.

The research conducted for this study included analytical reviews of material from a variety of primary and secondary sources, vendor profiles, product reviews, and reviews of existing CAP Ventures studies. Interviews with key industry players provided additional insight into the perceptions of the vendors who serve the market, and also contrasted with the users who struggle with integration and implementation issues. As part of its analysis, CAP Ventures cross-checked its market size and projections against other industry statistics, such as the overall value of print and pricing trends.

Secondary research included the use of CAP Ventures' original market research, U.S. government sources, industry trade association reports, data from other research firms, and individual corporate annual reports. This information was helpful in establishing and validating market sizes and growth rates.

Five surveys were conducted, with two covering how consumers view their bill paying options, direct marketing, and the security of the postal system. The remaining three surveyed how direct marketers view their businesses, how service providers view their market segments, and how transaction document producers see their market segments. We used this information to build a picture of the market and determine opportunity areas.

Survey of Transaction Document Owners

Our Transaction Document Owners' Survey was conducted via telephone and the Web with 327 document owners and buyers of transaction document services across a representative sample of Industries, employees, departments, and titles. Our survey was skewed toward larger companies (32% of the companies we interviewed had over 1,000 employees). Note that for all of our surveys, the sample size is statistically significant (+/- 5% at a 95% confidence level).

Survey of Direct Mail Document Owners

We surveyed 152 direct mail document owners and buyers of direct mail services, by telephone and via the Web. From them, we learned that there are large budgets associated with direct marketing and direct mail, and that there are more problems associated with generating and managing these documents than typical transaction documents. Our respondents came from a diverse cross-section of direct marketers. This diversity provides us with an excellent overview across the industries, and provides us with a stable base for our conclusions. This slightly lower sample size means that the data is statistically valid (+/- 8% at a 95% probability level).

Survey of Service Providers

Our Service Provider Survey was conducted with 421 service providers in the U.S., using Web and telephone-based interviews, across a representative sample of industries, employees, departments, and titles. 23% of the volume currently produced in data center/transaction print environment consists of statements and invoices, and an additional 20% is direct mail. Checks constitute 9% of total volume, and systems output (SysOut) and other reports account for 18% of that volume. All of this represents business

opportunity. Opportunity exists for migrating some print to e-delivery, for adding marketing messages to e-delivered and printed documents, and for fine tuning and managing document output.

Consumer Surveys

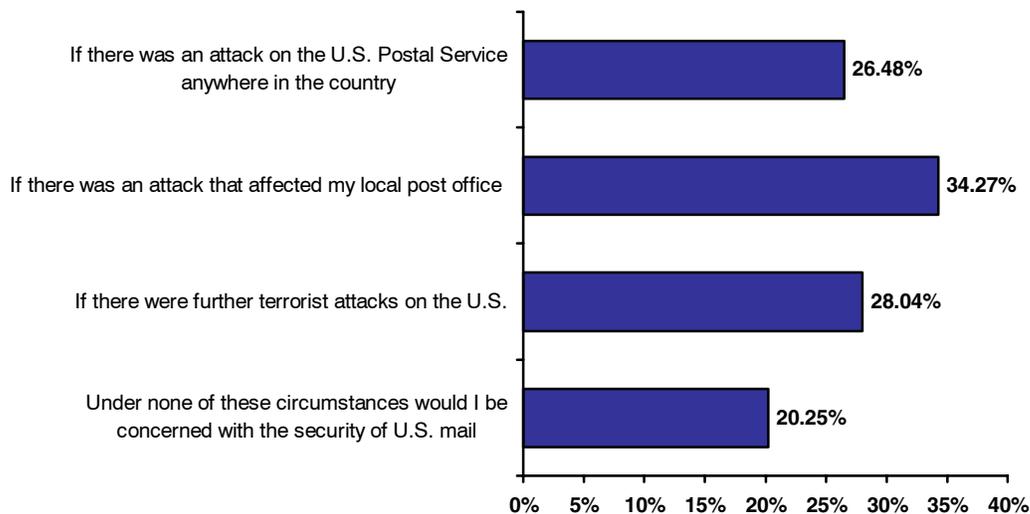
We conducted interviews with 326 consumers in the United States using personal interviews, Web surveys, and telephone surveys across a representative sample of consumers who are over 18 and pay bills. The survey contained two groups: one group was Web-enabled (from home) and the other group did not have Web access from home. All consumer work was completed in December 2002.

Summary of Findings: General Overview

While paper-based communication will remain strong, it is expected to decrease over time. It does not appear that the events of September 2001 had a long-term impact on the way we do business or the way in which consumers view their postal mail. While we can see that the use of paper-based transaction documents are the most likely to decrease over time, it also appears that direct mail printing will increase in the near term. One of the reasons that transaction mail will decline slowly is that the uptake on the use of electronic bill presentment and payment systems has not been as dramatic as originally anticipated by the analysts or the providers of those services. The tipping point for viewing is farther out in this decade.

The challenge for technology owners is to educate document owners on consumer preferences with respect to online viewing and paying services, and with respect to direct mail. It is clear from the responses to our surveys and others across the industry that consumers want their interactions to be personalized and appropriate. For technology purveyors, the requirement is to develop education programs for their customers that enable them to understand what consumers want in their communications with their billers, and how to leverage those preferences through the use of personalized marketing messages based on customer profiles.

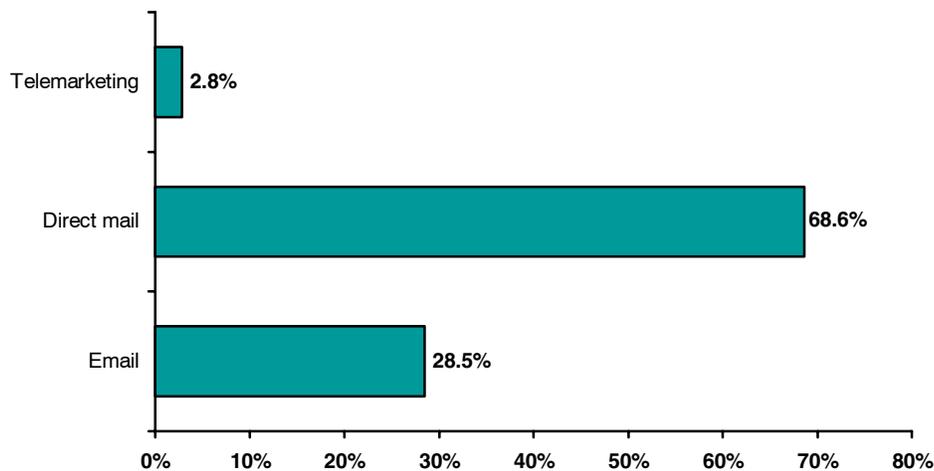
Figure 1: Conditions under which Consumers Would be Concerned about U.S. Postal Security



Consumers' View of the Future of Mail

A diverse group of consumers responded to personal, Web, and telephone-based surveys. The 326 consumers who participated were all over the age of 18, and all indicated that they were bill payers. Some used the Internet at home, while others told us that they were not Web-enabled. From these respondents, we identified a high preference for personalized information tied to their interests or their communities. They were less likely to mind unsolicited direct mail than unsolicited Internet-based marketing via e-mail, banners, and pop-up ads. In fact, these survey participants indicated that they prefer direct mail over all other forms of direct marketing.

Figure 2: Preferred Method of Contact

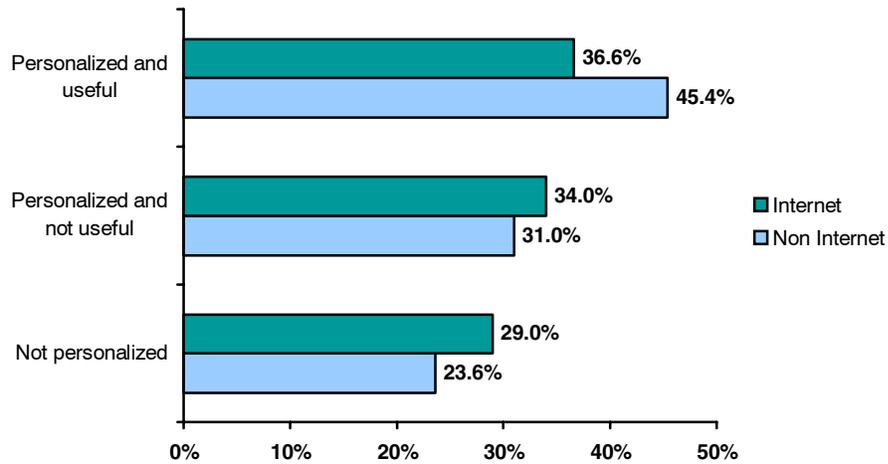


When it comes to paying their bills and interacting with transaction documents, our respondents told us the reason for moving decisively to electronic bill presentment and payment is the lack of a consistent and compelling story on the part of the billers. While it is clear the use of e-presentment and e-payment will increase, convenience will have to be sold and delivered. Furthermore, consumers are unwilling to pay a price to use the service.

Consumers and the Internet

Consumers prefer direct mail to other forms of direct marketing. Consumers who are Internet-enabled are as likely to prefer e-delivered direct marketing messages as paper-based direct mail, although there is a preference for personalized communication that is tied to consumers' interests and communities. There is an indication that online bill viewing/paying and the convenience of real-time interaction with the biller could win out over mail, although there are caveats. Consumers are more likely to be annoyed by unsolicited e-marketing than by unsolicited direct mail marketing.

Figure 3: Percentage of Items Received by Level of Personalization & Usefulness



Web-enabled, Internet-savvy users as well as non-Internet users are waiting for a compelling case from their billers and financial services providers to make the move to online bill viewing and payment. While the adoption rate is steady, consumers have not yet encountered the easy-to-use, single point of contact that analysts promised at the beginning of the EBPP movement in the 1990s.

Consumers are open to using bill viewing and paying services if there is no cost and if they can access all of their bills through a single point of contact. If consumers have to sit down to write even one check, they will likely write checks for all of their bills. The opportunity for financial services providers is significant since it does not appear that any one provider has captured mind share or market share to the exclusion of all others. Consumers also cite security concerns, which vendors and billers will need to work together to resolve. In fact, much of the educational burden for consumers and billers falls on the technology vendors.

Another point that emerges in online bill viewing and paying is that bill payers are likely to print copies of their bills for their personal files. There are millions of transaction pages migrating to local desktop printers and away from production printers. At the same time, however, 60.4% of bill payers continue to pay bills using paper checks and hard-copy mail.

Summary of Findings for Transaction Document Owners

For many transaction billers, there is not a quick and identifiable Return on Investment (ROI) in e-delivery services because their current business models and processes make the addition of the services a costly project. We learned that for most of our respondents, particularly those within the largest companies, there is a significant budget associated with the development and delivery of these documents. Our survey respondents told us that their workflows and procedures are efficient for paper-based transaction documents, and that relatively few problems are considered significant.

Online presentment of those same documents, however, presents hurdles that must be overcome. Part of the challenge for transaction document producers is that there is a clearly identifiable gap between how consumers prefer to receive transaction documents and how document owners prefer to deliver them. The cost savings that may drive a transaction document producer to offer e-presentment services has little meaning to the recipient of the document. Consumers are clearly interested in the ease of use of electronic bill presentment and payment, and would like to see some incentives that allow them to share in the savings that they know the biller sees.

For most Transaction Document Owner respondents, paper-based transaction document volumes will remain fairly stable over the next few years. The opportunity to move more transaction documents to e-delivery in the business-to-consumer (B2C) segment is dependent on how billers decide to offer these services. Financial rewards clearly exist for those who move transaction document delivery from paper to screen. Nevertheless, legacy systems and diverse database formats must be contended with, and this requires significant investments in software and infrastructure.

With the slower uptake of EBPP among consumers, calculating the ROI has become more difficult for many enterprises. Companies can justify these investments by increasing call center efficiency and building online, self-service kiosks. It is unclear, however, how effective customer self-service will be with average users. There is also a gap between consumer preferences and biller preferences in terms of delivery models, as most companies are pursuing biller direct models and consumers desire fewer contact points.

Fewer than half of our respondents tell us that they do not have a plan to offer online bill presentment or bill payment by 2005. Among the transaction document owners, it appears that using transaction documents as a marketing messaging medium is growing, especially in the financial services segment. For respondents who are implementing an EBPP model, the biller direct model is currently the most popular, among our respondents as well as across the industry. In most biller direct models, access to the billing site has no fees associated with it and in most cases the customer has immediate access to all current activity as well as the information that appeared on their last paper statement (if they still receive one). Some believe that the biller direct model continues to be the most popular because the alternative consolidator models have not been effectively marketed and priced to convince the billers and consumers that there is a value.

The Thin Client Consolidator Model provides a site to which billers send their invoices for the customer to view at their leisure. Information at this site is summarized, and the customer must visit the biller's personal site to examine their bills in detail. The Thick Client Consolidator Model provides billers with a site that hosts all of the biller's information. Paper bill scanning is not supported in this model. For 21.7% of our respondents, the plan has been to implement bill presentment without the bill payment services, such as payment acceptance and processing online, on the biller's Web site or through a link to an alternative payment site. While there may be latent demand for using a consolidator, only 14.5% of our respondents are considering or have implemented a Thin Consolidator or Thick Consolidator model.

A 2002 Harris poll conducted on behalf of CheckFree, a provider of financial electronic commerce services and products, indicated that 94% of U.S. consumers are willing to visit three or more Web sites to view or pay bills. Our survey found that 86.9% of our Web-enabled respondents pay bills online because of the convenience. Surprisingly, 87.2% of those who are not using the Internet today said they would pay bills online, if they were Web-enabled, because of the convenience.

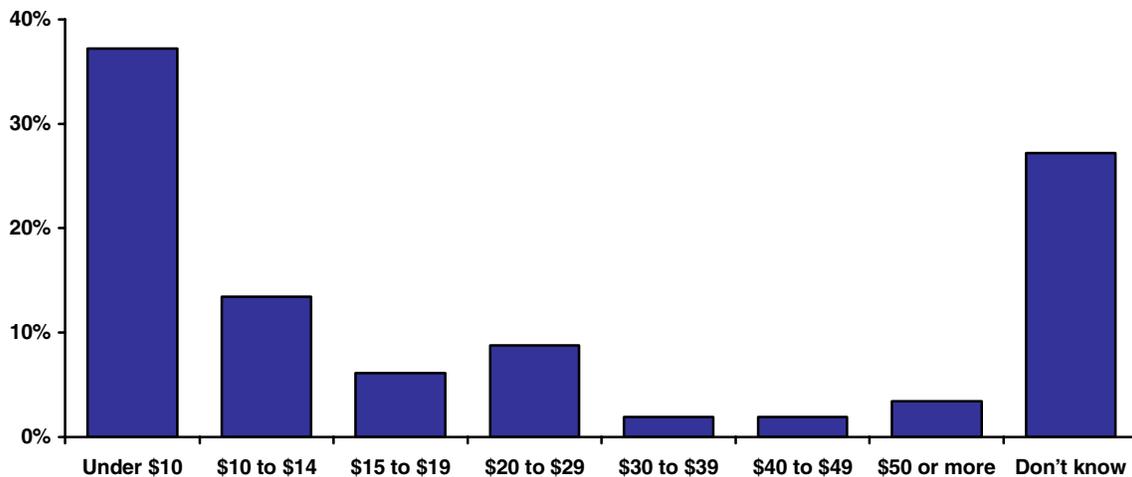
Transaction Document Owners' View of the Future of Mail

By their very nature, transaction documents are transient. They represent communication between two parties, usually initiated as the result of commerce. Other transaction documents are generated because of a need to communicate a change in the status of the relationship between the parties or to provide information to meet regulatory obligations. By and large, most transaction documents typically require some type of response.

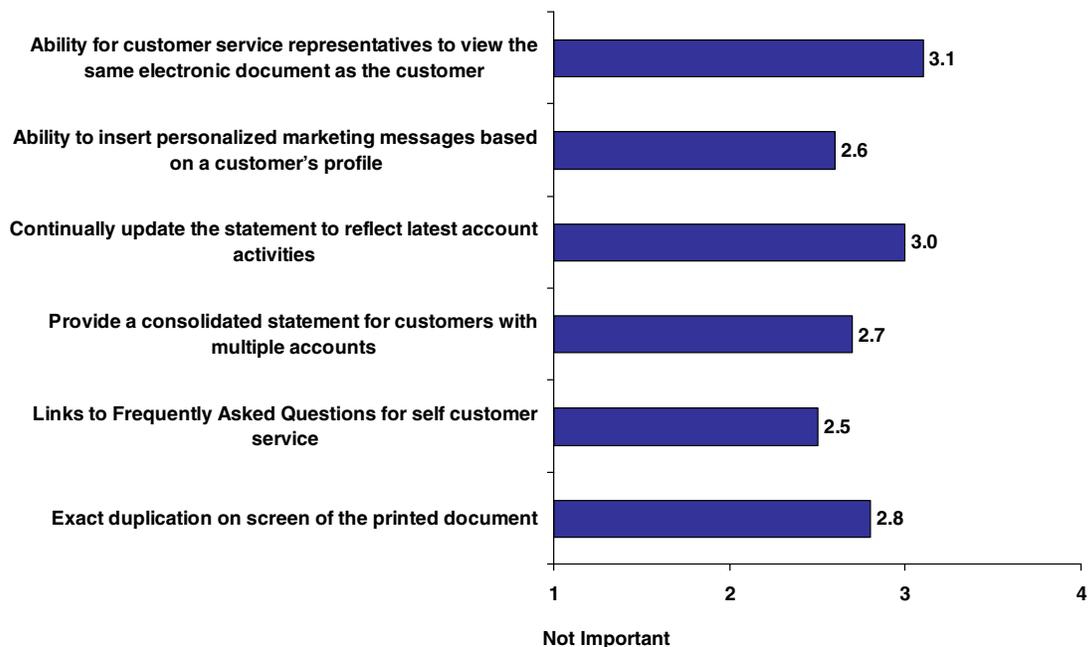
Customer Relationship Management (CRM) & Communication

One metric used to understand the true cost of interacting with customers is the determination of the average cost of each customer call that comes into the call center. We asked respondents to include the costs for labor, facilities, phone lines, and other elements associated with the internal call center or the third-party service provider. Based on their responses, we found that the mean reported cost per customer support call is \$13.80. Figures from CRM Daily indicate that within the financial services industry, the average cost for an inbound call to a mid-size call center is approximately \$7. When the nature of the call is beyond simple profile updates and requires research, the cost of those calls can reach as much as \$75 each. We believe that the \$13.80 cost is on the low end of the scale. The data from this question was affected by the significant number of respondents who did not know their costs for support calls (27.2%).

Figure 4: Average Cost per Customer Support Call



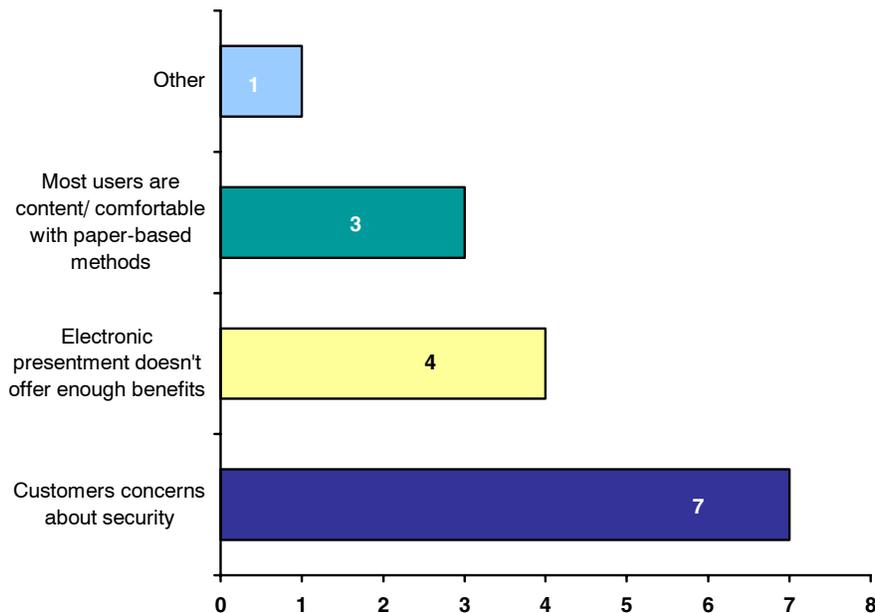
Approximately one third of our survey respondents believe the exact duplication of the printed document on the screen is critical or extremely important, with another 26.6% saying they believe it is moderately important. One third of the respondents stated that exact duplication was only minimally important (19.7%) or not important at all (20.3%). On a scale of one to four, this factor was weighted with a mean score of 2.8, indicating that it does carry some weight in the decision-making process.

Figure 5: Importance of Factors for e-Delivery***The Future of EBPP***

Based on our research for this report and other recently completed studies, CAP Ventures expects the use of electronic bill presentment and fully-realized electronic bill presentment and payment systems to increase gradually. More than half of the respondents that participated in our survey indicated that they did not plan to offer the ability to view a bill or statement online by 2005.

The majority of our survey respondents did not have an answer when asked why e-presentment has not been adopted faster. Among those respondents that did have an answer, a few indicated that they believe consumers are content with paper-based systems. Of those that go through a formal evaluation process for return on investment on their information technology (IT) expenditures, the mean time required for payback on implementation is 19.6 months, just over a year and a half. 15% of the respondents say they do not go through a formal ROI analysis.

**Figure 6: Why Has e-Bill Presentment Not Been Adopted Faster?
(Based on responses from companies that have deployed solutions)**

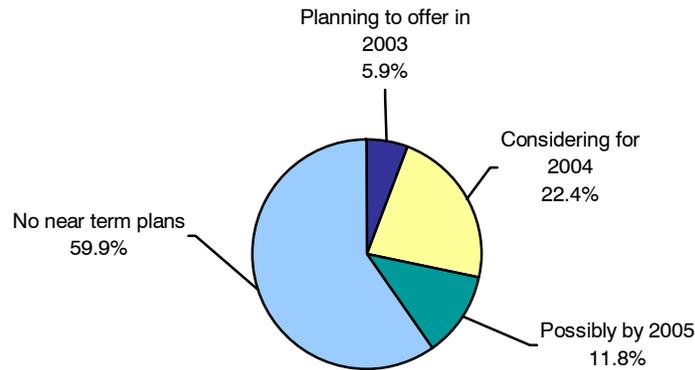


We asked those respondents who manage ROI calculations to tell us how they achieve their ROI. More than 60% of the respondents' savings are related to postal costs. 32% cited a combination of print, postal, and payment processing savings in addition to reduced calls to the call center. Meanwhile, 31% said that savings are purely based on print, postal, and payment processing savings. For 18% of respondents, savings are totally based on print and postage savings, while 7% believe the ability to upsell to their customers contributes to their ROI. The remaining 12% told us they believed in bill presentment as a strategic offering but did not see an ROI associated with the implementation.

As important as postal rates are to the cost of delivering transaction documents, our survey participants provided mixed responses when asked if postal rates impacted their decision to move forward with a bill presentment plan. While 43% said that their decisions regarding implementation of e-presentment were independent of postage increases, 26% told us that each increase prompts them to place more emphasis on providing e-presentment services. 31% claimed that the amount of emphasis placed on implementing e-presentment depended on the amount of the increase.

Although our respondents had some strong opinions on factors critical to e-delivery, 78.2% are not yet offering Internet Bill Presentment. Of the 254 respondents who are not offering bill presentment, 59.9% had no plans to offer it in the near term. This becomes a clear gating factor, not the desire of recipients but the willingness of senders to invest in this solution. Of those who do have plans to provide bill presentment (which does not necessarily include bill payment services), 5.9% told us they expect to have their services in place in 2003. Another 22.4% told us they are considering implementation for 2004, while 11.8% say they are considering implementation for 2005.

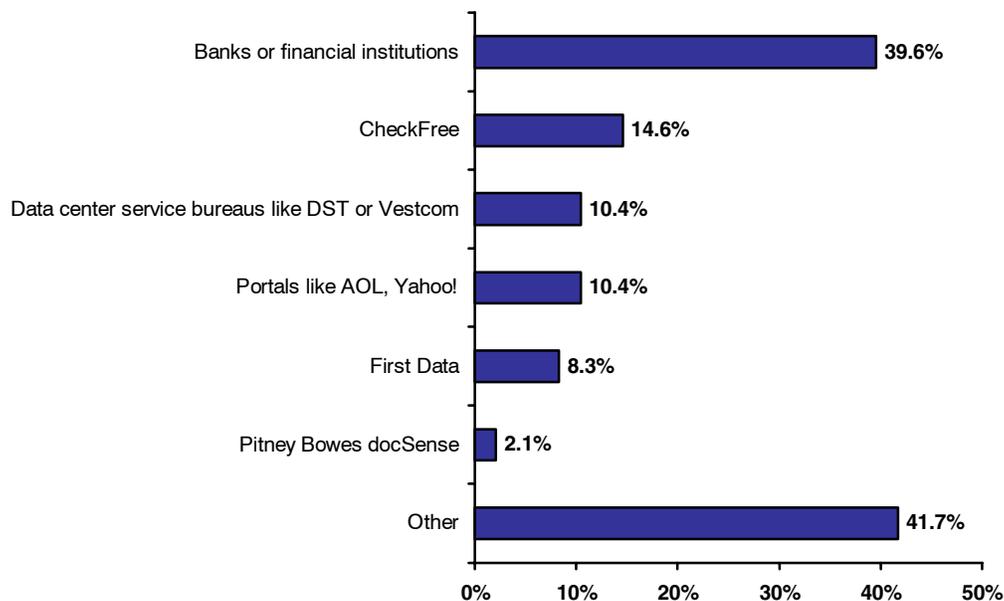
Figure 7: Year Expected to Provide Internet Bill Presentment



We asked those respondents who have already implemented an Internet presentment system to give us their best estimate on how much their enterprise initially spent getting the Internet billing system operational, including all hardware, software, integration, and operations. Across all respondents, the mean amount initially spent to make the system operational was \$1,513,800. Nevertheless, more than 40% of our respondents did not know their implementation costs.

Banks and other financial institutions were cited as the key providers of electronic bill presentment and payment services by 39.6% of our respondents. CheckFree is providing services to 14.6% of our respondents, while 10.4% use a data center provider like DST or Vestcom to meet their needs. Another 10.4% have signed on with a portal service such as AOL or Yahoo to drive their bills to their customers. First Data and Pitney Bowes docSense (now the DMT business unit of Pitney Bowes) rounded out the named providers, while 41.7% of our respondents reported using some other provider.

Figure 8: Companies Providing Consolidation and Presentment Services



Web portal providers who have been trying to build a consolidator model may find the biggest challenges, since our enterprise respondents reported being least comfortable with them as providers. There is no

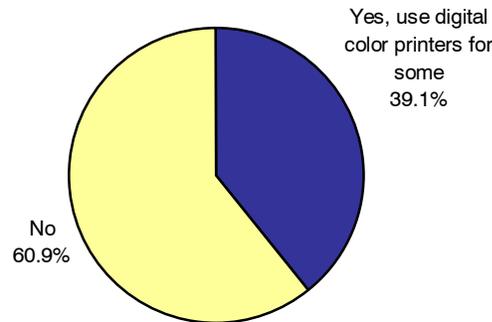
clear winner across the board in terms of what type of organization enterprises want to partner with to provide these services.

The transaction document owners that we spoke with indicated that most (75.2%) document management and archiving functions are handled in-house. Printing is predominantly handled by internal staff members. Across industries, enterprises that want to offer bill presentment typically look at their own internal systems to determine where their challenges will be and then seek to develop an implementation path that uses as much of their existing systems as possible.

Color & Marketing Documents

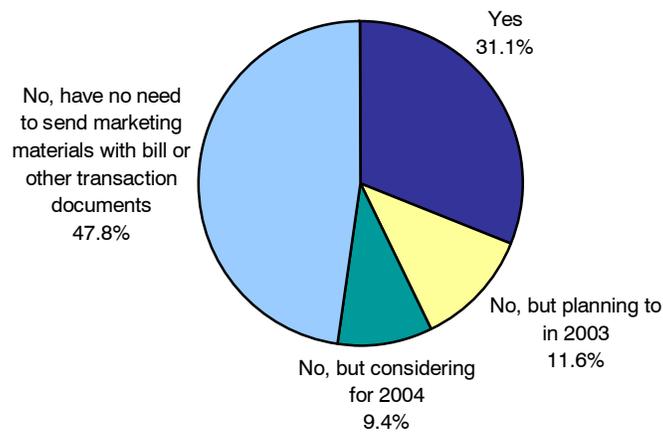
For almost 40% of our respondents, color has become a feature of their transaction print documents. Enterprises can add color to transaction documents today because the technology that makes it possible has entered the market at price points that make it viable. Nevertheless, more than 15% of our survey participants still believe that the cost of color is an inhibitor. More than 11% of respondents also cited personalization issues, as they are struggling with the ability to cost-effectively personalize their transaction documents with marketing messages and graphics.

Figure 9: Use of Digital Color Transaction Printing



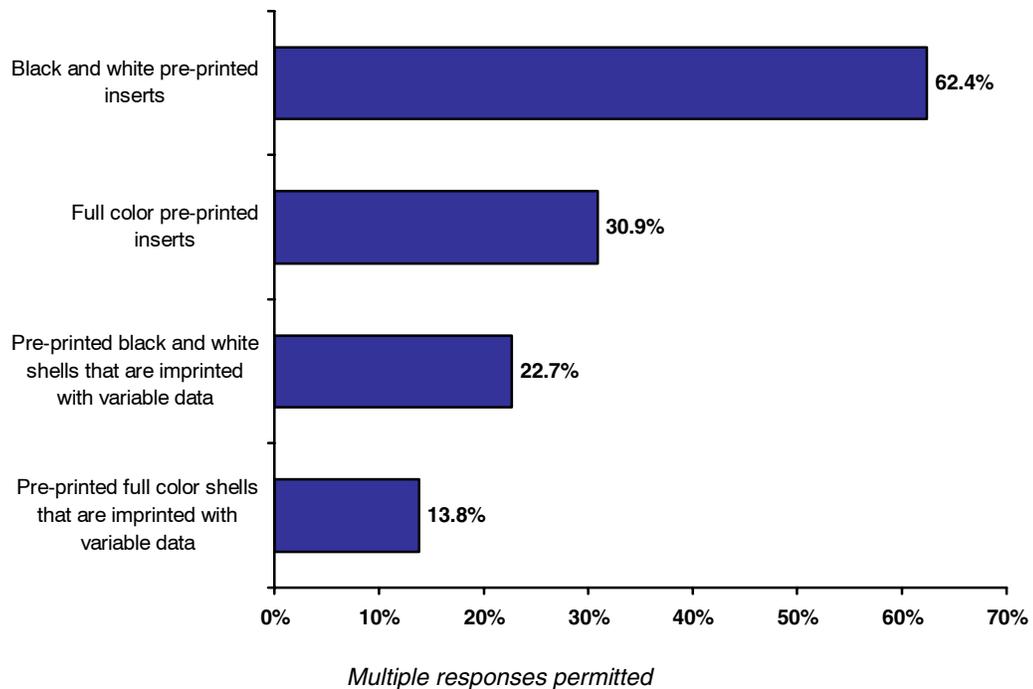
In aggregate, 31.1% of survey respondents currently include marketing messages in transaction documents. Another 21% expect to do this by 2004. For those whose annual transaction document spending is under \$100,000, 51.6% said they had no need to include marketing messages in transaction documents. 30.8% of those who spend \$100,000 to \$1 million annually say that they do need to include marketing documents, and 21.2% of those who spend greater than \$1 million indicated the same. Conversely, 57.6% of those who spend more than \$1 million already include marketing messages with their transaction documents, with another 12.1% planning to add that feature in 2003 and 9.1% planning to add it in 2004. The indication is that those who spend more on their transaction documents are more likely to include all types of marketing materials in their transaction mailings.

Figure 10: Inclusion of Marketing Messages in Transaction Documents



30.9% of our respondents reported that full color, pre-printed inserts are part of their marketing tool kits. These products are most likely to be used by companies spending more than \$1 million per year, and least likely to be used by companies spending under \$100,000 annually. More sophisticated inserts use variable data. 22.7% of our respondents use variable data with pre-printed black & white shells, while 13.8% have full-color shells using variable data.

Figure 11: Items Used with Transaction Documents



Summary of Findings for Direct Mail Document Owners

Companies spend a significant amount of money on direct marketing and direct mail. Because color and personalization play a role, direct marketing document owners tell us that they have identified a number of areas that present challenges, including how to integrate data from customer systems with high quality color output in a high-speed digital environment that is responsive and cost-effective. Direct mail document owners believe that color is an important factor now, and is growing in importance.

The demand for mailed and e-delivered direct marketing documents is relatively stable with some growth occurring, and the demand for e-delivery is increasing over time. While the need for e-delivery will grow more slowly than many previously anticipated, it will grow steadily. This is not to say that the requirement for paper-based direct marketing campaigns will decline. Our indications are that paper-based direct mail is also on the increase, and that interest in integrated joint programs is growing.

Comparing notes across our consumer-targeted surveys and our direct mail document owner surveys, we learned that consumers are a bit less impressed with personalization than direct marketers believe. Direct mail is the preferred method of marketing and telemarketing is the least appreciated. Clearly, personalized direct mail is still the most attractive to consumer recipients, with personalized e-mail growing in popularity. The key is personalization.

Vendors can be most effective by educating the market in the use and effectiveness of personalization. Learning the correct way to use customer data will be the key. Vendors who lead the education campaign will need to keep this in mind. One-to-one marketing is not always appropriate. One-to-five or one-to-twenty-five marketing may actually be the best choice. For example, in using customer profiles to develop marketing strategies, customers tend to react badly to personalization that identifies their habits, medical conditions, or other information that they may consider private. Customers who suffer from allergies might appreciate flyers and advertisements sent to them with discounts on allergy medication, but many do not want to receive mailings that identify them and their specific allergies. Vendors can also educate their direct marketing customers about how to effectively use digital color and other emerging new technologies that ensure consistent output across a variety of digital devices. Part of their message must include strategies and implementation scenarios that will make sense to their customers as they work to make the transition to digital technology and multi-channel output.

Direct Mail Document Owners' View of the Future of Mail

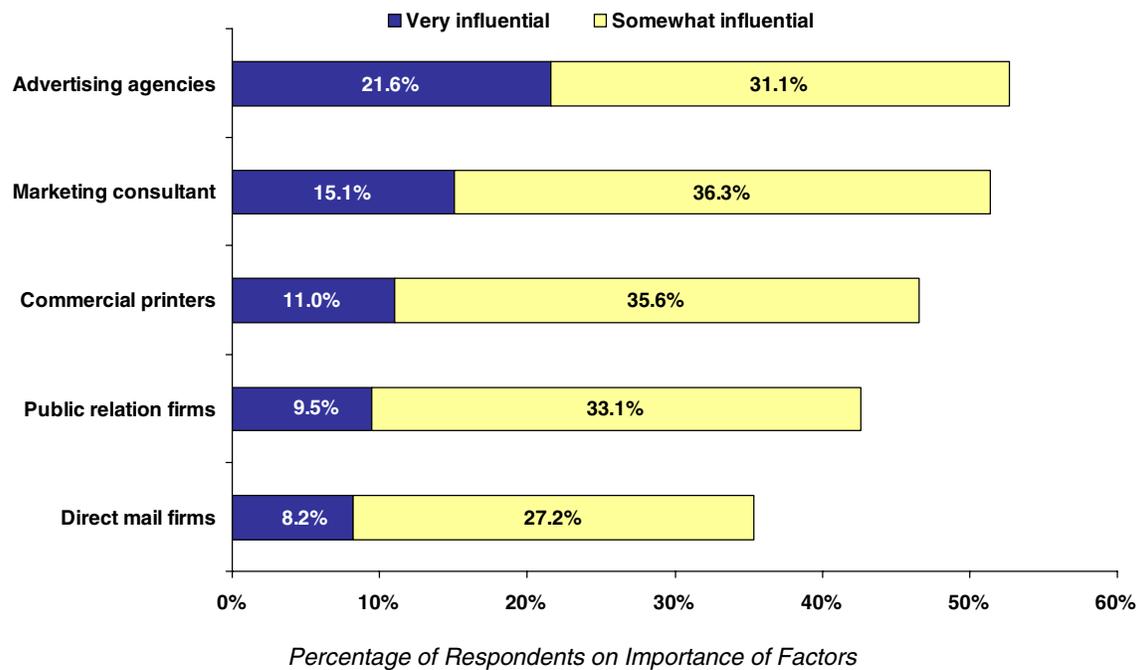
Like consumer recipients of direct mail documents, direct mail developers are also very interested in performing greater personalization and adding color. Respondents tell us that they are exploring the ability to add or expand the use of color in their direct mail documents as well as the ability to move to digital printing that facilitates greater personalization. All indications are that paper-based direct mail is still strong, and that joint Web and mail programs generate the most interest to this market segment.

Because direct mail is more cost-sensitive than transaction documents, the ability to expand into color, enable enhanced variable data printing for personalization, and use digital printing must demonstrate clear returns to convince direct mailers to take the risk. Businesses must be convinced they will see an identifiable return, and total solutions that address all parts of the existing workflow must be adequately addressed from data to delivery.

e-Delivery

While e-delivery of marketing messages is on the rise, paper is still a strong delivery mechanism that shows no sign of disappearing. Advertising agencies, marketing consultants, and PR firms are influential and often drive decisions in this area of the market. Opportunities exist to integrate personalization, one-to-one marketing techniques, and other features. Nevertheless, this study indicates that direct mail is more cost-sensitive than transaction documents, and the efficiency and effectiveness of these documents must be demonstrated to potential users of this technology.

Figure 12: Importance of Various Types of Firms for Business Communications Strategies

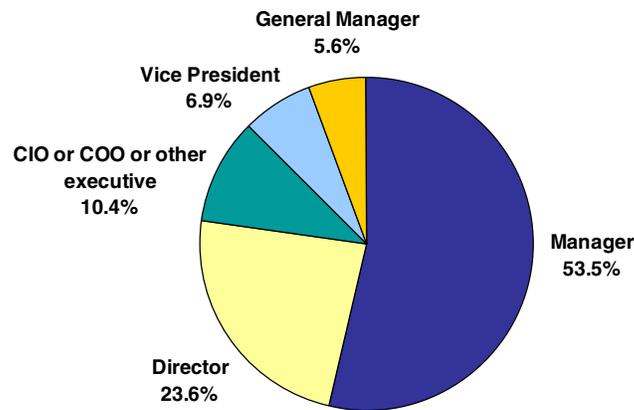


Another point that emerges from our data is that consumer recipients of direct marketing material are less impressed with personalized content than the creators of those documents. The mismatch in perception of these documents is evident in our survey results. Participants who are not using the Internet at home are more likely to open and read direct mail, with 50.4% telling us they generally open and read such mail. Only 36% of those who are using the Internet at home told us they feel the same way. Comparing perceptions, we asked direct mail document creators which method of contact they thought recipients preferred. 69.4% told us they believed direct mail was the preferred method, and 29.9% told us they believed e-mail had become the preferred method.

Changing Print Volumes

Our survey participants carried different levels of responsibility. 53.5% were managers, 5.6% were general managers, 23.6% were directors, 6.9% were vice presidents, and 10.4% were “C”-level executives. When we separated job responsibilities in terms of company size, we found managers and directors within companies of all sizes — 17.3% were from printing services and 46.7% were from marketing, sales, administrative, or operational functions. While 45.9% of our respondents answered for an entire U.S. operation or enterprise, 35.6% answered with respect to a single group or division and 18.5% answered with respect to a specific operating company or division.

Figure 13: Respondent's Job Title

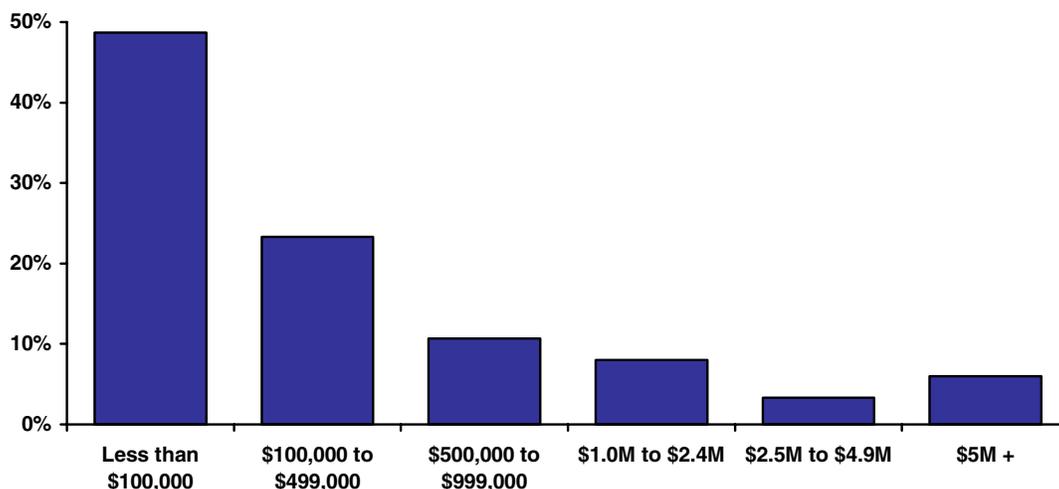


Spending

Direct Marketing

The mean amount of expenditure on direct marketing for 2002 (covering direct mail, telemarketing, Web marketing, wireless, newspaper, magazine, television, radio, and other outlets) was \$787,000, and more than 48% of respondents spent less than \$100,000. Direct mail is the most significant area of spending, while Web-based direct marketing is the least significant. 14.3% of companies with 100 - 499 employees spent more than \$5 million on direct marketing. Companies with fewer than 100 employees spent an average of \$284,782. Companies with 100 - 499 employees spent an average of \$1,295,714, which was not remarkably different from the mean of \$1,162,222 spent by companies with more than 500 employees.

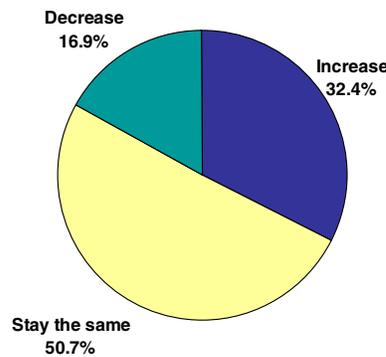
Figure 14: 2002 Direct Marketing Spending
Mean Amount Spent on Direct Marketing = \$787,000



We also asked our respondents if they anticipated spending more or less in 2003 relative to 2002. Half of the respondents (50.7%) expected spending to remain at 2002 levels, while 32.4% expected spending to

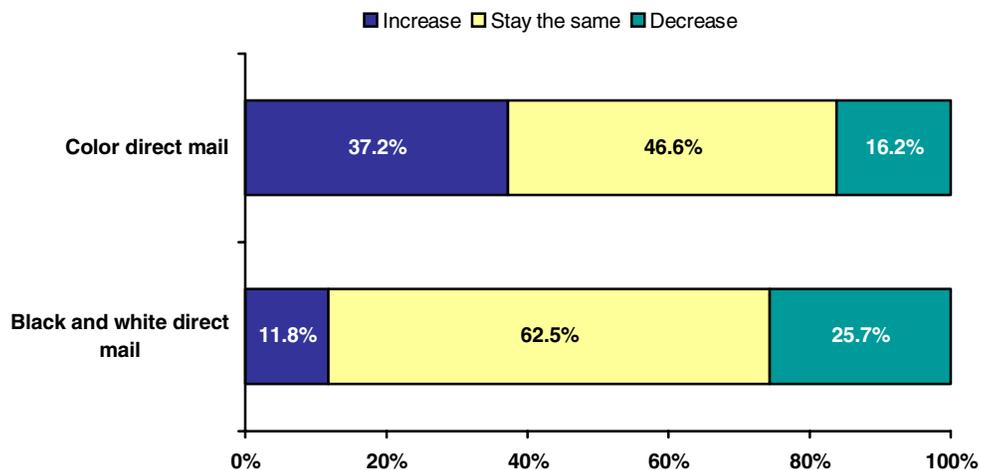
increase. Only 16.9% expected it to decrease. For the small number of respondents who expect 2003 spending to decrease in relation to 2002, slightly more than a quarter (28%) believe that it will decrease more than 25%. Another 28% of respondents believe that spending will decrease between 13-24%, and slightly less than a quarter (24%) believe that spending will decrease 8% - 12%. 20% believe spending will decrease 7% or less. The largest anticipated decreases in spending were seen among the smallest organizations. 45.5% of companies with fewer than 100 employees indicated that spending will decrease by more than 25%. The mean amount spent across all segments was \$725,342.

Figure 15: Expected Change in Direct Mail Spending (1)



Across all segments, the majority of our respondents expect their color and monochrome direct mail spending to stay the same. A little more than one third (37.2%) of our respondents indicate increased spending for color direct mail.

Figure 16: Expected Change in Direct Mail Spending (2)



*****Telemarketing & Advertising**

The mean amount spent on Telemarketing is \$166,095. Consumers indicated that this was the least effective and most disliked method of direct marketing. It persists because companies would rather make a sale (it is effective) than satisfy consumers' preferences. 87.7% of respondents indicated that the rate of spending on telemarketing is under \$100,000. The greatest percentage of respondents across companies

of all sizes are spending under \$100,000 for telemarketing, and no company indicated spending more than \$500,000. Mean spending on print advertising for 2002 topped out at \$3,168,000, with the largest companies generally spending the most.

Web-Based Direct Marketing

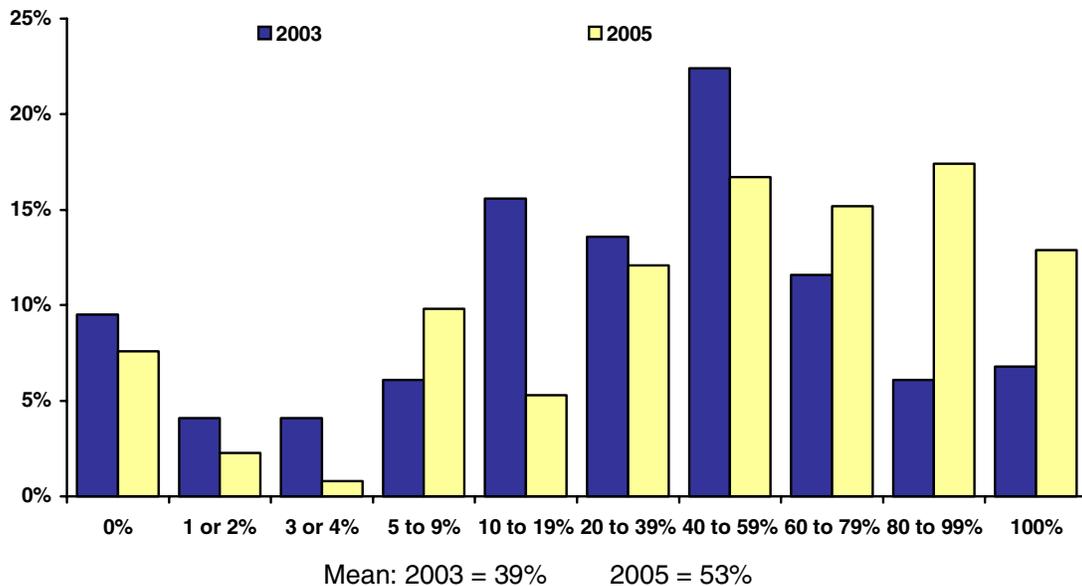
Our survey respondents reported spending an average of \$198,900 on Web-based direct marketing advertising in 2002. While this mean seemed low, some of our respondents reported spending as much \$2.5 - \$4.9 million in 2002. The vast majority, however, cited spending of under \$50,000. The mean expenditure on Web-based direct marketing for companies with fewer than 100 employees was \$142,400. Companies with 100 - 499 employees reported the highest mean spending of \$335,200 in 2002. Companies with more than 500 employees spent an average of \$166,600, implying that mid-sized companies are the most aggressive users of this type of advertising.

Printing Technology

Digital printing is one technology that continues to attract attention in the direct marketing segment. The attraction includes the ability to develop pieces for an audience of one or one million with equal ease. An additional attraction comes from the generally quicker turnaround times and execution of marketing pieces. While barriers to using digital printing vary by company, they include the cost of changing internal printing environments and the cost and implementing software to support digital printing.

Using the amount of print spending as a gauge to group companies by size, companies spending under \$500,000 (8.4%) and those spending \$1 - \$4.9 million (6.3%) said that all of their work was digital. Of companies with budgets greater than \$5 million, half of the respondents told us that 10 - 19% of their work is digital, while 25% said that 60 - 79% of their work is digital. There is an indication that the majority of our respondents are interested in moving to digital printing.

Figure 17: Portion of Direct Mail Using Digital Printing



Color

It is clear that black & white will see some decline in the future, while the use of color will continue to increase. The majority of increases across all types of direct mail print in all company sizes and revenue segments will be due to color work. Anticipated spending patterns indicate that color technology is of interest to most of our respondents. Very few of our respondents stated that they are not using any color today (1.4%) or that they anticipated being color-free in 2005.

When looking at the use of color segmented by the amount spent on direct mail, only companies spending under \$500,000 tend to lack color printing. Across all spending segments, the norm is to utilize full color for producing 40% or more of the direct marketing materials.

The mean portion of direct mail expenditure on digital printing for companies spending under \$500,000 is 41.5%. Companies spending between \$500,000 - \$999,999 on direct mail score a mean of 29.8% spent on digital printing. The mean for companies spending \$1 - \$4.9 million is 27.5%, and companies spending more than \$5 million on direct mail spent an average of 37.5% on digital printing.

Marketing Messages

We asked respondents if they use marketing messages in their transaction documents. The term "marketing message" refers to any type of personalized or mass-customized message beyond the transaction and statement information, billing amounts, and other account information. 53.1% of our respondents indicated that there is no need to include such messages in their bills or other transaction documents. Another 27.6% said the technology is already part of the tool kit, and 19.3% said it will be in their tool kit by 2005. There is clearly an opportunity to expand this service.

The Technologies of Direct Mail Environments

The cost of printing and delivering direct mail was identified as a significant problem by 24.5% of respondents, and a moderate problem by 28.6% of respondents, thus becoming the area of most concern. The next most significant problem is the ability to cost-effectively use full color to project a premium corporate image. While 2.7% considered it a major problem, 16.3% called it a significant problem and 25.2% said it was a moderate problem. The ability to personalize direct mail as needed, even with analytical information such as graphics, does not represent a technical challenge, even if our respondents choose not to use the technology.

e-Delivery

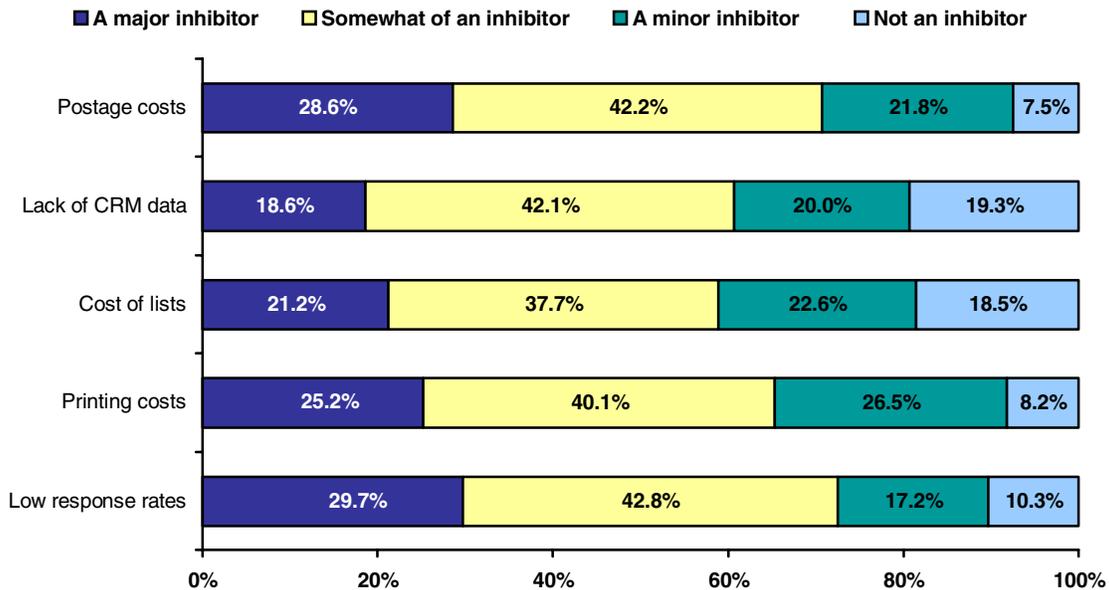
The most critical issue was the ability to provide customer service representatives with the same view of the electronic document as the customer sees. The requirement for exact duplication on the screen of the printed document is very important to 42.5% of respondents, though it was critical to only 6.8%.

Direct Mail

The ability to easily target recipients was identified as the most important factor by 77.6% of respondents. Two additional areas of concern were the low cost per mailing and the ability to identify a measurable response rate (these factors were listed as very important by 63.7% and 61.9% of respondents, respectively). When we look at the amount being spent on direct mail campaigns among companies that spend more than \$5 million on digital printing, the percentage of respondents who say cost effectiveness is very important drops to 55.6%. Low response rates are the most significant inhibitor for 72.5% of these companies. Close behind at 70.8% is the issue of postage costs (also seen in earlier responses).

While the lack of CRM data (identified as a high-profile topic) is a significant inhibitor to only 18.6% of the respondents, it is somewhat of an inhibitor to 42.1%. Lack of CRM data is a major inhibitor for 25% of companies with fewer than 100 employees, 17.1% of companies with 100 - 499 employees, and 11.9% of the largest companies. More than half of the largest companies said this was not a significant issue, or considered it a minor inhibitor.

Figure 18: Inhibitors to Using Direct Mail



Direct Mail Production Activities

Direct mail activities may be determined by requesting bids from internal and external organizations, or they may be determined by corporate policy. We asked the companies that produce their direct mail internally to identify factors that they considered important. The factors cited included better security, better delivery, more overall control, and lower costs.

As we saw in other questions, cost is the most significant factor (60.4% of respondents considered it to be very important). Meanwhile, 48.6% of respondents said that more overall control is very important and 48% said that better delivery is very important. Security was identified as very important for less than a third of our respondents (31.1%). As the level of personalization increases, organizations will likely become more concerned with security, and addressing security requirements take a higher priority among service providers inside and outside the organization.

Externally Handled Activities

We asked companies that go to external providers to identify companies they use, by name or class of company (multiple responses were permitted). UPS Mail Innovations emerged as a clear star, with 14.8% of direct mailers indicating that they do business with this organization. UPS Mail Innovation moves approximately 9% of the U.S. gross national product through its operation. Enterprises that do their direct mail business with external providers are likely to use more than one provider.

DST Output is another major force in this segment, with 2002 revenues of \$535 million. DST provides services and software to manage print and electronic communication, concentrating in the financial services market. It offers statement and bill processing as well as workflow and document management solutions.

Bowne is the revenue leader in financial document printing, with 2002 revenues of \$1,003.3 million. The company provides transaction print, direct mail, and traditional commercial printing services for the financial services segment. It has a variety of specialty subsidiaries that provide services for proxy statement printing, annual reports, and other regulated material.

Internet Marketing Systems

We asked respondents how much their companies initially spent to make their Internet marketing systems operational, including hardware, software, integration and operations. While 13% reported that they did

not have such a program, more than 50% did have a program and spent less than \$100,000 to make it operational. The mean amount spent to make an Internet marketing system operational was \$688,145.

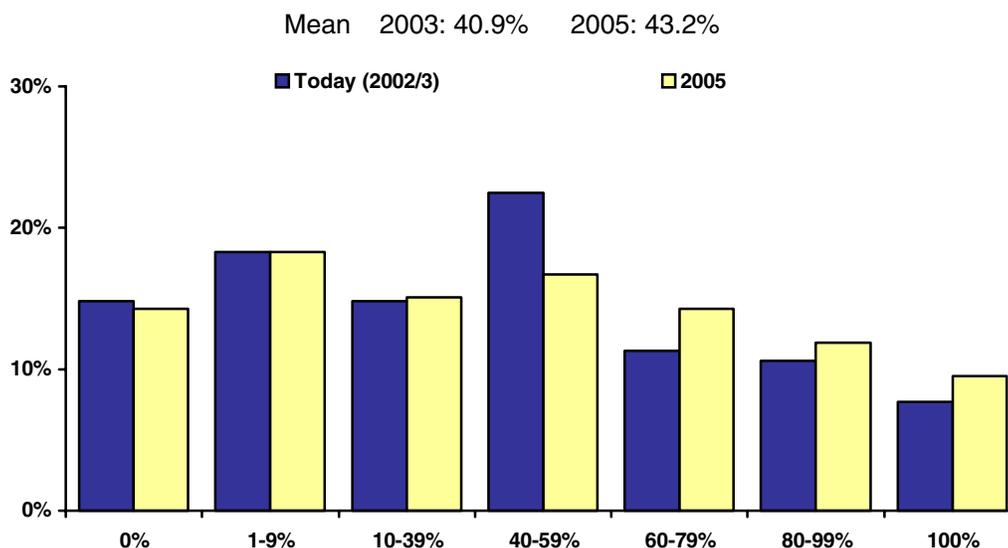
With the belief that enterprises will see a benefit in coordinating their Web-based and direct mail initiatives, we asked respondents what portion of their current campaigns are coordinated today, and how they saw that changing by 2005. Typical bell curves emerged. 9.2% of respondents said that none of their current campaigns were coordinated, and this percentage was expected to drop to 5.4% by 2005. At the opposite end of the spectrum, 2.8% of respondents said that they are totally coordinating their efforts today, and 6.2% expect to have a complete coordination of activities by 2005. The vast majority of respondents fell somewhere in the middle, with a significant movement from 1 - 40% coordination in 2003 to 40 - 99% coordination by 2005. For 2003, an average of 40.8% have coordinated campaigns, and this percentage is expected to reach 54% by 2005.

77.1% of respondents intend to use e-mail based on previously obtained permission. 27.5% of our respondents plan to push e-mails to their target recipients, asking for permission to conduct additional correspondence. 16.8% of respondents intend to simply push e-mail to target recipients. Despite the fact that consumers dislike spam, many companies feel it is providing a sufficient ROI for continued investment.

We posed the question in alternative form by asking which factors might cause a move to Internet-based direct marketing. Again, the sensitivity to cost comes through, with cost of print production (80.7%) and cost of postage (73.1%) identified as the most significant drivers. Delivery delays also got a nod from our respondents, with 41.4% citing this as a consideration. Compared to what is spent on direct mail today, the sensitivity to the cost of postage increases with the amount of annual spending, while the sensitivity to the cost of print production decreases slightly. While attacks on the mail delivery system or terrorist attacks are not seen as significant factors, they do appear to be the most potentially disruptive.

Miscellaneous Issues in Direct Marketing

We were curious to see what direct mail technologies our respondents currently use or anticipated using within the next few years. We first asked about the use of self-mailers or technology to insert direct mail into envelopes. (A self-mailer is a mailing that is self-contained and does not require an envelope. For example, a folded sheet or a postcard would be a self-mailer. A self-mailer could not be used as a container for a substance like anthrax.) During and after the anthrax attacks, we saw some movement to self-mailers. One possibility is that while the total number of pieces may grow, the amount of printing may decrease. Self-mailers also enjoy the benefit of lower postage. The mean use of self-mailers is currently 40.9%, and this percentage is expected to grow to a mean of 43.2% by 2005. There were no significant differences among companies of different sizes on direct mail spending levels.

Figure 19: Portion of Printed Direct Mail that Will be Self-Mailers

We also asked what percentage of direct mail pieces would be personalized, and to what degree. While 38% of our respondents do not personalize mail at all, they are generally interested in doing so. 31% attempt some personalization based on a limited knowledge of the target audience. This is the place where the lack of CRM data comes into play for companies that want to use this technology but lack the infrastructure to do so effectively. 31% of respondents indicated that they currently produce highly personalized direct mail pieces based on their knowledge of the intended recipients. Consumers showed a clear preference for highly personalized direct mail. Nevertheless, we found that a gap exists between what consumers see as being personalized and what direct mailers view as highly personalized.

Connecting With Customers

We asked direct mail producers to indicate which methods their customers preferred when it comes to receiving direct marketing pieces. Direct mail producers believed that 64.9% of respondents preferred direct mail, 29.9% preferred e-mail, and 7% preferred telemarketing. When surveying consumers directly, we found that 68.7% preferred direct mail, which is very close to the percentage that direct mail producers expected. 28.5% of consumers indicated a preference for e-mail, which also lines up very closely to direct mail producers' expectations. What is interesting is that direct marketers knowingly inflict telemarketing despite the knowledge that recipients dislike it.

Optimization

For those using traditional printed direct mail, there are a variety of emerging technologies that can aid in mail handling. 56.4% of our respondents said that they currently have no mail optimization technologies in use. Nevertheless, 34.2% are using some type of marking system to aid in mail management activities, and 23.5% are using CASS (Coding Accuracy Support System) or PAVE (Presort Accuracy Verification and Evaluation) to certify their addresses with U.S. Postal Service address lists. Only 12.1% are currently checking their addresses against the National Change of Address database, and only 4% are using video verification (a process utilizing a video camera to verify that the address printed matches the record in the database). In addition to these technologies, mailers can also take advantage of services that verify return addresses, comprehensive lock box processing technologies, and the emerging XML-based standards for address management. We believe the use of CASS or PAVE certification is underreported as it may be performed by a service provider.

Wireless Devices

Marketing pushed to wireless devices has not yet developed extensively, but it is poised to grow. This includes cell phones, but other devices may apply as well. 48.3% of our respondents are already on board with wireless technology, and plan to increase spending in this area in the future. This is an area that all direct marketers will have to follow in coming years, as new devices and technologies emerge.

Standards

Job Definition Format (JDF) is an XML-compliant standard. It was of significant interest to only 2.8% of our respondents and of moderate interest to 9.9%.

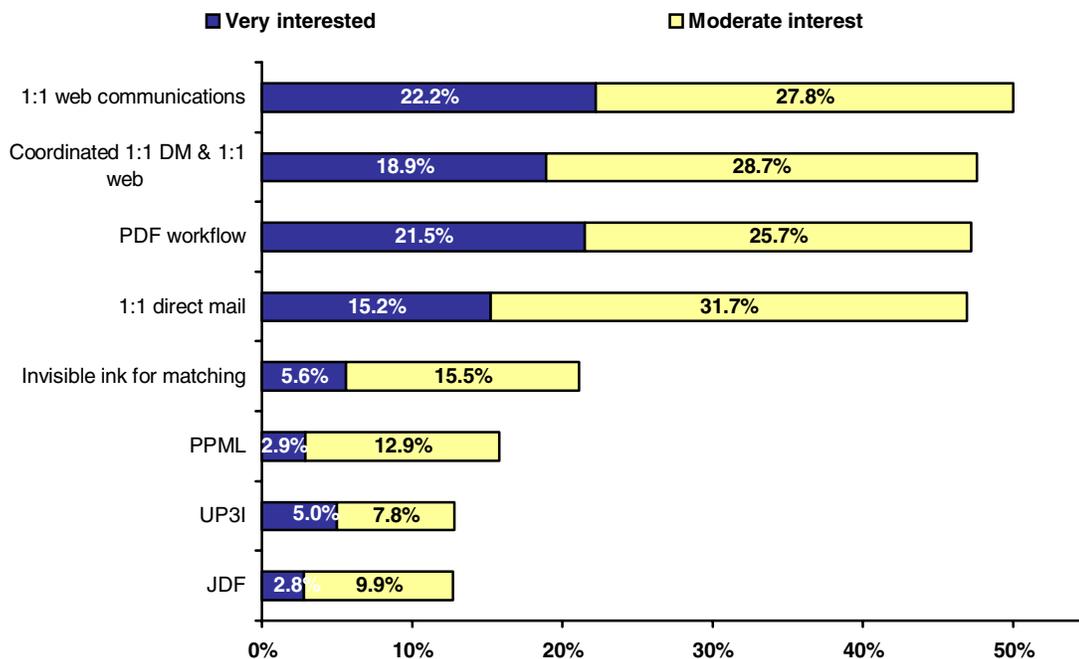
Another XML-compliant standard, Personalized Print Markup Language (PPML), is a standard crafted specifically for the type of work that direct marketers handle. PPML attracted significant interest from 2.9% of our respondents, although 12.9% reported being moderately interested.

UP³I (the Universal Printer, Pre- and Post-processing Interface) is designed to unify process control for all of the equipment found in the print environment. JDF would be a feeder to the UP³I environment, as would all workflows. Only 5% of our respondents were very interested in UP³I, which indicates that the benefits of these technologies are not reaching end-users. End-users must embrace these standards if they are to gain acceptance.

Invisible ink systems for document matching and intelligent mail control was of significant interest to 5.6% of our respondents, and 15.5% said that they were moderately interested.

PDF workflow attracted moderate or significant interest from 47.2% of respondents, with 21.5% of respondents reporting being very interested.

Figure 20: Interest In New Technology



Summary of Findings for Service Providers

Variable data printing and color printing are high on the list of technologies that our service provider respondents are interested in. Most of the service providers that we interviewed expect to implement these technologies as initial installations or to enhance existing installations of hardware and software. The top investment choice is a high-speed digital color printer, and that investment may be used to replace aging equipment or to add capabilities driven by business needs.

The variable data jobs that are currently most widely printed are those that are simple in complexity, generally replacing fixed fields with limited variable data, but little more. Over time, there will be growth in the use of more complex variable data processes, but this growth is not expected to be dramatic. Document owners and service providers who have had some level of success with their current methods will need a significant level of justification to spend time and money to engage in personalization. Vendors of this technology have not yet provided the solid financial justification that those companies need to see. While this is a market space that tends to change slowly over time, the changes in attitudes are identifiable. Capital investments are tied to the emerging opportunities. The clear belief is that short-term and long-term growth is tied to services.

A serious gap exists between plans, perceived trends, and reported behavior. Many service providers are not planning on making investments that would enable them to take advantage of the trends they report. It is our conclusion that service providers who are not planning to invest in software and use advanced technologies will most likely become victims of industry consolidation. There is a widespread belief that industry consolidation will continue, and companies that do not invest in their futures are more likely to have difficulty staying afloat.

For equipment, software, and solutions vendors, as well as savvy customers, we believe it will be fairly easy to distinguish between service providers who are likely to make future investments and those that are not. Research indicates that commercial printers are most at risk, and that those who identify themselves as “Digital Print Service Providers” are the most innovative. Overall trends are positive for digital equipment and relatively bleak for traditional offset presses. Opportunities exist for equipment, software, and solutions vendors to educate print service providers and help them “connect the dots” between opportunities and required investments. As the amount of capital to invest is limited, the case must be made that service providers invest in growth parts of the business, and avoid additional investments in the portions of the business that are in continued decline.

Service Providers’ View of the Future of Mail

Service providers generally fall into the category of Print for Pay, though some are also in-plant providers to an enterprise. We surveyed 421 providers. Generally speaking, these providers are anticipating growth in digital printing and the use of color. Many are already printing digital color jobs. Their top investment choices are high-speed digital color devices and high-speed cut-sheet black & white printers, although their investments are generally tied to real opportunities.

Figure 21: Industry Profile of Respondents

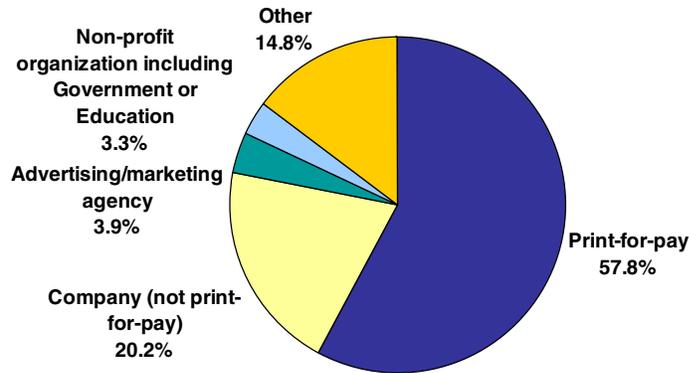
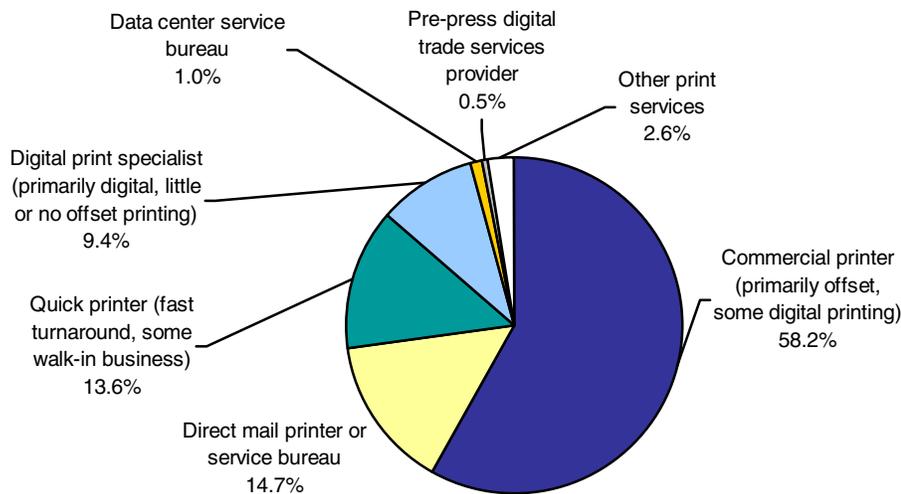


Figure 22: Type of Print for Pay Provider

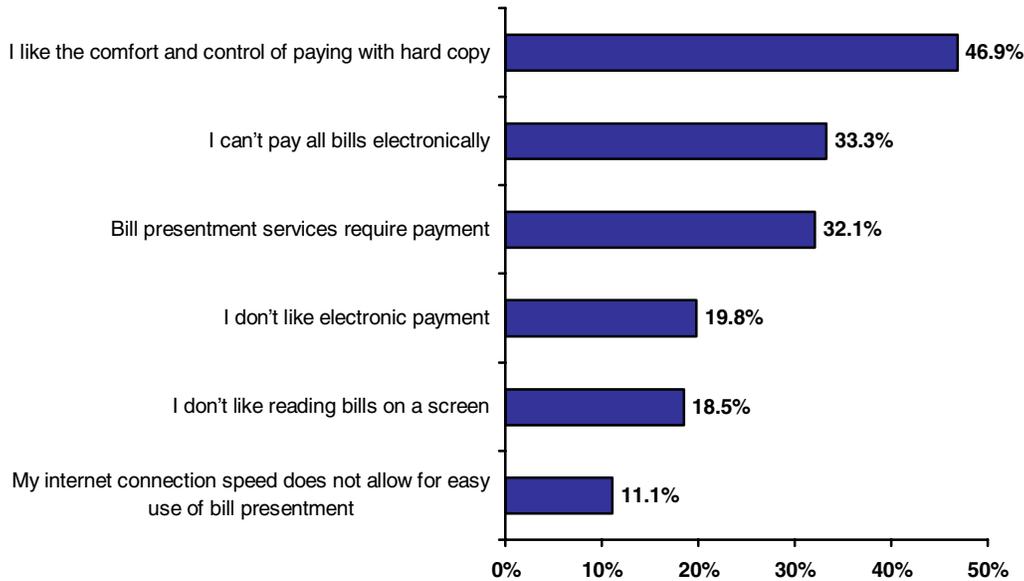


A Case For Viewing & Paying Online

While consumers are open to the idea of turning away from paper-based processes, they want some incentive. In recommendations to its customers, eDocs (a service and software provider of pre-packaged customer self-service, e-billing, and e-statement offerings for credit card issuers, banks, insurers, and brokerage firms) often suggests short-term incentives, such as reduced fees over a three-month period, to create consumer interest and build the consumer routine. Slowly, that routine evolves into customer self-care activities as well as e-presentment and e-payment. According to CheckFree, credit card billers should expect to see the biggest uptake in online bill viewing and payment, increasing from 13% of their

customers in 2003 to about 23% of their customers in 2005. At that level of use, reaching a desired ROI may prove difficult for many companies.

Figure 23: A Consumer's View of Why E-Bill Presentment has Not Been Adopted Faster



According to industry estimates, companies spend an average of 90 cents to \$2 per invoice to send a bill and process a payment through the mail, compared to the 30 - 40 cents required to process them electronically. Saving 60 cents to \$1.60 per bill may not be enough to harden the ROI.

According to figures released as part of the CLICK 2002 conference, billers in the telecommunications industry project that about 26% of their bills will be viewed and paid online by the end of 2003. This percentage is expected to grow to about 35% by the end of 2005. Billers in the insurance industry project that about 21% of their bills will be viewed and paid online by the end of 2003, and expect this percentage to increase to 28% by the end of 2005. Credit card billers project that 13% of their bills will be viewed and paid online by the end of 2003, and expect this percentage to grow to about 23% by the end of 2005. Utilities billers project that about 6% of their bills will be viewed and paid online by the end of 2003, and expect this percentage to increase to about 11% by the end of 2005.

Personalization

When direct mailers were asked about personalization and one-to-one communications, they generally professed an interest. Web-based one-to-one communication was the most interesting to our respondents. CAP Ventures' studies on the personalized print market show a clear relationship between the use of variable data and full color. Higher-value communications (i.e. color) tend to have more personalized content and often use full color.

Document owners and service providers who have had some level of success with their current methods need a significant level of justification to spend time and money to engage in personalization. The vendors of this technology have not provided the solid financial justification that those companies need to see to make a purchase decision. Print technology is improving, and new generation printing devices are less expensive to operate and much faster than previous generations. The software and hardware that drives these devices is also improving, making the development and execution of one-to-one programs easier and more cost-effective.

Using Color

Printed color is becoming less expensive and easier to use. A recent CAP Ventures study indicates that almost one-half of all print spending is devoted to full-color printing, while spot color and black-only jobs each account for about 25% of total spending.¹ This same study found that as the price of color drops, 52.4% of all spot color volume and 41.7% of all monochrome volume is expected to move to full color.

CAP Ventures' studies have found a close relationship between the use of color and personalized print programs, in that only 27% of personalized jobs were printed without the use of any color.² The use of digitally printed color is increasing. The on-demand color market, as measured by pages in the United States, is expected to experience a CAGR (compound annual growth rate) of 19%, increasing from 42 billion pages in 2002 to 100 billion pages in 2007.³

Color is an important element in B2B and B2C communications. When joined with relevant content, it dramatically improves the effectiveness of documents. In an increasingly competitive business climate, effective business communications are a necessity. The effective use of color and personalized content are dramatically changing the look and nature of these documents. CAP Ventures is forecasting annual growth in variable data print of 6% a year, and the use of personalized color digital printing is projected to grow 36% per year until 2006.⁴ Companies that fail to take advantage of these changes in technology will likely lose customers and face decreasing returns on their current practices and expenditures.

Equipment Investment Plans

We asked print service providers to indicate their equipment investment plans for the next three years. They were asked what equipment they had budgeted for 2003, what equipment they were considering for 2004, and what equipment they might possibly purchase in 2005. They could also indicate what equipment they had no plans to purchase in these time periods.

Reflecting the current state of the industry, the most common response for every category of equipment was "no plans to purchase." High-speed (80+ ppm) cut sheet black & white printers were the most common planned equipment purchase for 2003. Overall, investment levels were higher in 2004, and high-speed digital color printers (60+ppm) were the clear winner for investments in 2004 and 2005.

Investments in mail inserting equipment and high-speed addressing systems grew for 2004, and interest in specialty printers such as roll-fed black & white and spot color printers was reflective of the existing installed base. Interest in offset presses was expected to increase in 2004, but overall it lagged behind digital printing equipment investments.

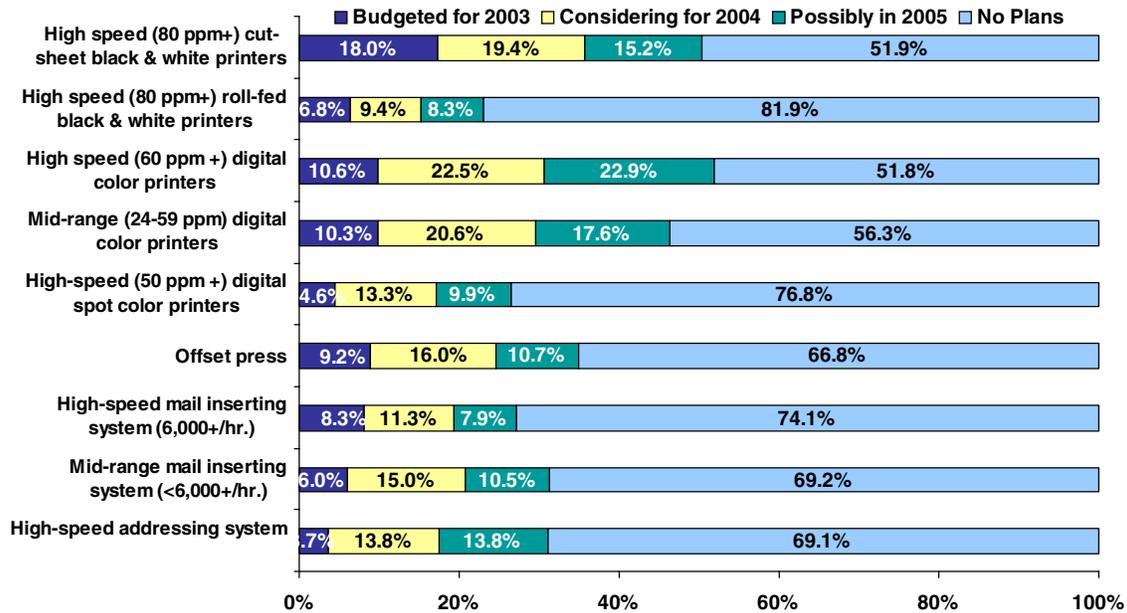
¹ *The Next Generation Digital Color Print On Demand Opportunity*, 2002, CAP Ventures

² *1:1 Communications*, 2000, CAP Ventures

³ *U.S. Print On Demand Market Forecast, 2002-2007*, CAP Ventures.

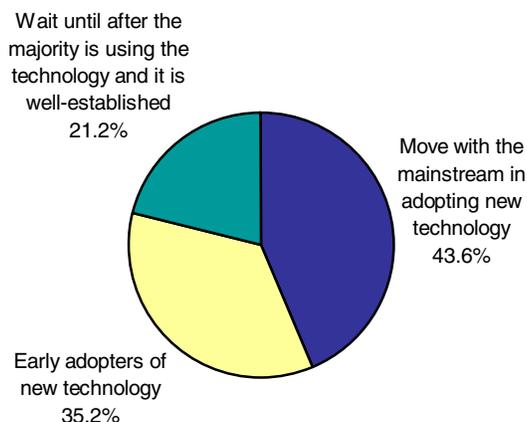
⁴ *U.S. Variable Data Printing Forecast*, 2003, CAP Ventures

Figure 24: Equipment Investment Plans



Technologies that Impact the Future of Mail

When it comes to information delivery, just as there are a variety of electronic, management, and distribution initiatives that impact the business process and workflow, there are a vast array of technologies available to support the enterprise. There are hardware and software technologies to streamline the print and mail operation, emerging data interchange standards, a host of pseudo-standards, industry-accepted file formats, graphic formats, and tagging languages. What technologies are industry leaders looking at, and which appear to have longevity? Which are interesting to transaction document owners, direct mail document owners, and service providers? This section discusses the key technologies emerging in this space, and provides the background to evaluate how they will fit into your enterprise.

Figure 25: Approach to Acquiring New Technology

Automated Document Factory (ADF)

In the transaction and the direct mail environments, there are many vendors who offer some or all of the components used to build an ADF workflow. Companies like Xenos, EmTex, Sefas, Pitney Bowes DMT, and OPserver sell components that provide document manipulation, data extraction, and format transformation, permitting ADF builders to integrate divergent data streams into consolidated output streams for multi-channel delivery. There are also companies that will build an ADF application tailored for your environment. Companies like Pitney Bowes, Océ, Xerox, IBM, IKON, Konica, and Danka can develop an ADF for the enterprise. The service providers that responded to our surveys said that they were aware of this technology. ADF has already become a reality for 11.6% of respondents, while another 12.7% tell us they are planning an ADF implementation this year and 12.4% are considering an ADF implementation for 2004.

The automated document factory concept can help transaction document and direct mail developers map document flow, understand the inefficiencies in their current environments, understand how new equipment and technology can provide a more efficient workflow, and provide a path to more integrated relationships with internal data suppliers and outbound service partners.

Address Data Interchange Specification (ADIS)

ADIS is a royalty-free XML-compliant specification developed to create an internationally viable address interchange format. It is an industry standard for domestic and international address management and mail production using address element technology.

For mailers, the benefits of adopting standards include improved address quality, better mail delivery, and the ability to manage international files with a single format. Postal services benefit from the ability to manage rendition quality by reducing mail handling and forwarding. For service bureaus, there is the opportunity to simplify processes, ranging from acquiring missing address elements to merging/purging, output media creation, and improving consistency. Postal services, printers, and letter shops will be able to combine ADIS with IDEAlliance's Mail.dat file specification to improve containerization (i.e. mail that moves in bulk to another location for distribution) and to support predictive co-palletization and co-mailing. This combination will also enable mailers to obtain reduced cycle times for incorporating address changes and late additions into mailing files.

Advanced Function Presentation (AFP)

The AFP architecture has an associated family of printer software and hardware from IBM and others. It provides document and information presentation control at the input and output segments of the print job,

independent of the application or device. Adoption of AFP architecture in the data center is widespread, even in environments where the final print is not to an IBM device. In many data centers, the core applications produce AFP data streams, which are passed to print transform programs that produce output for Xerox Metacode or DJDE, PostScript, PCL, PDF, HTML, or other formats.

AFP is typically found in large enterprises where high-speed printers are used to produce hundreds of thousands of pages of transaction documents on a monthly basis. Nevertheless, the architecture also lends itself to supporting office documents, technical manuals, user guides, parts catalogs, and similar documents.

The AFP architecture includes tools and methodologies for adding variable data to preprinted forms, merging variable data with electronic forms, and building complex composed print streams. Color support is fully in place, as is support for double-byte character sets. It also provides Application Programming Interfaces (APIs), which enable programmers to build bridges to a variety of legacy applications. Among the service providers responding to our question about technology, 19.4% are printing AFP today. Another 4% are planning to implement AFP in 2003, and 5.6% indicate a plan to implement in 2004.

Digital Front Ends (DFEs)

The Digital Front End addresses the convergence of the transaction and digital print environments, especially as they concern variable data printing. Instead of creating a comprehensive application that does everything, most DFEs are modular, allowing the enterprise to add features as it expands or modifies the print workflow. DFE technology has the potential of streamlining the create-print-distribute functions that are vital to effective multi-channel information delivery.

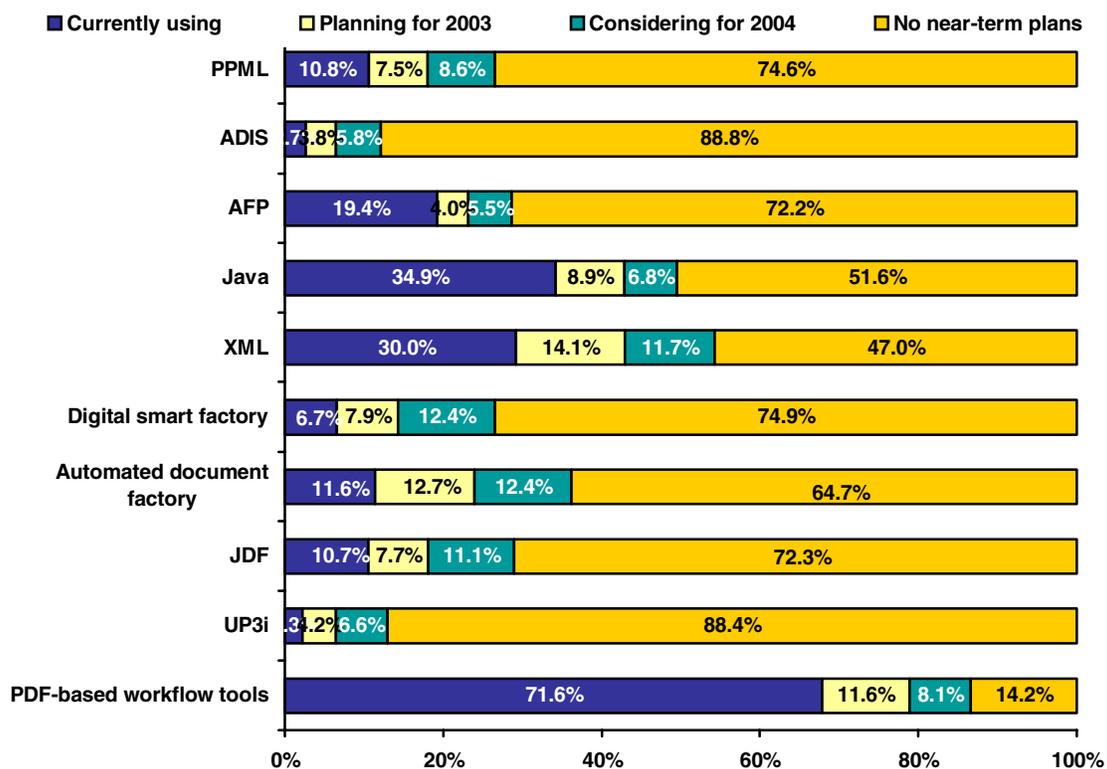
To be effective, a DFE must be able to address document management and control, regardless of the composition tools in use, and provide interfaces that allow for auditing the document and print workflow, with or without the presence of ADF tools. Since most enterprise environments rely on more than one print file format or Page Description Language (PDL), the DFE must be at home with all of the standard formats, including PostScript, AFP, line data, and PDF. It must also be capable of feeding and interacting with the enterprise repositories and archives.

Digital Smart Factory

The concept of the Digital Smart Factory results from the marriage of computer technology with process re-engineering in the print environment. At its core, the Digital Smart Factory is designed to move toward manufacturing process controls, using information technology.

It is becoming clear that print service providers need to do more than simply put ink on paper to remain competitive in the marketplace. Customers are looking for a full range of value-added services, and those services tend to be more profitable than the actual printing process itself. Implementing a Digital Smart Factory can help companies operate more efficiently and retain their existing accounts by enabling them to spend more quality time with customers. It will also facilitate attracting new customers by offering value-added services that were not possible without these technologies. Among the service providers responding to our question about technology, 6.7% say they have already implemented a Digital Smart Factory, while 7.9% indicated a plan to implement in 2003.

Figure 26: Technology Usage



Java

Java is a programming environment designed to form part of the network infrastructure that supports smart networked services. It began as a technology that would live on the user's computer as a purely client-side application, but quickly evolved into a technology for building smart infrastructures. The technology is an object-oriented, platform-independent, multi-threaded programming environment that enables software to run across a variety of platforms.

The Java environment includes Java Print Services and Java 2D API, which allows whatever is drawn on the screen to be reproduced on paper. It understands concepts such as printable area, page, and books. The value to vendors and enterprises building document creation, management systems, and mail management systems is that Java-based programs should be usable on a variety of hardware platforms, without making changes. Among the service providers surveyed for this report, 34.9% of those responding to our question about technology said that they were currently using Java-based applications in their production environments. Another 15.7% said they are considering using Java-based applications by 2004.

JDF

Job Definition Format (JDF) is another XML-compliant application, an outgrowth of the work of many vendors during the mid-1990s intended to link the mechanical and automated processes involved in tracking all types of print jobs. Of the service providers that we surveyed, 10.7% are using JDF in their operations and another 18.8% plan to incorporate JDF by 2004.

JDF is gaining acceptance among prepress, press, and postpress vendors who service the direct mail industry. It is only slowly gaining foothold in transaction printing, where printer controls have typically been vendor-specific. Because so much of the JDF implementation is occurring within vendor software and is accessed by customers through upgrades of existing installations or new implementation of vendor software, JDF is likely to become a de facto job definition tool in the future.

In a review of Graph Expo 2002, CAP Ventures' Managing Director, Charlie Pesko, pointed out two scenarios for acceptance. One scenario is for all vendors who are integrating JDF to use the approved specifications and end up with JDF profiles that can be interchanged across environments. The other scenario is for vendors to add their own tweaks and twists, and lock customers into their proprietary form of a so-called standard. Today, it is difficult to determine which way the industry is moving.

Personalization

Personalization, or mass-customization (a more accurate name), is the delivery of content and offers based on a mix of historical and current behaviors. The end goal of personalization is the same as all technology-enabled marketing strategies: to create a sustainable relationship with "best customers," which leads to increased customer retention and long-term profitability. Why perform personalization, if the effort is so much work and the skill set is outside that of traditional marketers? The simple answer is results. Analysis suggests that personalized interactions exceed static contacts in responses, brand imagery, and overall profitability.

Until print service providers see legitimate demand for personalized services and are supplied with easy-to-use tools to enable this service for customers, growth rates are likely to remain gradual. New offerings (i.e. Easy vi from Xerox, the expanded capabilities with the PrintShopMail product from Atlas, the PrintNet products from GMC) must make a compelling case to service providers. At this point, however, most service providers are still not convinced. Document owners and service providers that have had some level of success with their current methods will need a significant level of justification to spend the time and money to engage in personalization. Technology vendors have not yet provided the solid financial justification that companies will need to see prior to making an investment.

Print technology is rapidly improving, and the newer printing devices are less expensive to operate and much faster than previous generations. Print engine software and hardware has also improved. This will make the development and execution of 1:1 programs easier and more cost-effective.

Portable Document Format (PDF)

Across a variety of industries, PDF has become the standard for distributing fixed-format documents that maintain fidelity to an original print image. In the financial services, brokerage, insurance, and banking industries, PDF delivery of statements and other instruments has been common for almost a decade.

Many software and hardware vendors now avoid printing their own manuals, opting instead to provide a CD-ROM with a PDF file or a form letter with a Web address where the documentation can be downloaded. Even the U.S. Government is a PDF practitioner, with most government agencies standardizing on PDF for document and forms delivery during the last five years.

PDF is already a significant force, and the PDF/X standard extends PDF's marketplace influence. The thrust of PDF/X is to define the means of reliably exchanging information about color and formatting across an array of production environments. Adobe has taken the necessary steps to add consistent tagging, XML compliance, and color management, providing the needed hooks for archiving, workflow, and composition to enable vendors to enhance their products for greater efficiencies. With the pervasiveness of the free Acrobat Reader and the proliferation of a variety of fee-based vendor alternatives from Adobe and other companies, PDF is entrenched in the enterprise.

In the service provider and direct mail environments, where a greater requirement for managing workflow exists, there are PDF-based workflow tools available. Workflow includes creation and output, color management (including color blends and gradients, color separation management, general image handling), font management, vector graphic handling, and formatting handling (including transparency, page geometry, and overprinting). Products in the PDF Workflow space include Creo's Prinergy, DALiM's TwiST, Agfa's Apogee-Create, Creo's Prepare, OneVision's Speedflow, and EFI's Velocity Oneflow.

Service providers appear to already have a handle on PDF-based workflow, with 71.6% telling us that they have a process in place, and another 19.6% reporting that they are considering a PDF-based workflow by 2004.

Personalized Print Mark-up Language (PPML)

Software to personalize statement and policy printing has been around for years for use with high-speed line printers, AFP, and Xerox printers. When it came time to move that type of merge/print personalization to traditional press or digital printing environments based on PDF and PostScript, the choices have been limited and were generally based on proprietary technology. In our survey of direct mail document owners, 2.9% of the respondents said that they are very interested in PPML, and another 12.9% were moderately interested.

Another PPML subset has already been accepted as an ANSI standard. The American National Standards Institute (ANSI) is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. PPML/VDX (Personalized Print Markup Language/Variable Data Exchange) is the PDF-based subset of PPML. The primary focus of PPML applications has been in direct mail applications where the personalization features can be exercised. The Print On Demand Initiative (PODi) reports on a variety of applications, such as versioned response mailers for an insurance application and personalized magazines. Across the transaction document and direct mail markets, however, it is not yet clear that PPML will be adopted as the standard for the development of personalized print.

Universal Pre- and Post Processing Interface (UP³I)

UP³I is the result of joint development efforts by teams from IBM, Océ, Stralfors, Hunkeler, Duplo, Xerox, and others with a goal of developing an open standard for interfacing all of the hardware components that participate in the digital print environment. It specifically addresses feeding and finishing devices. UP³I provides a key interface to allow secure, traceable workflow through secure and non-secure print environments. Work on the standard has progressed steadily, and new vendors are continuing to sign on to work with the interface. By their very nature, printers are reluctant to spend money on new equipment and processes. In addition, there is a considerable amount of installed equipment in the market, and most printers would elect to use what they have before going out and purchasing new equipment, unless driven to make an investment by their competitors.

Web Services

Another XML-based technology is encompassed in the term Web services. By definition, these are interfaces between programs that allow seamless communication, generally taking the form of self-contained business functions, operating over the Internet. By using Web protocols such as Hypertext Transfer Protocol (HTTP) and data formats like eXtensible Markup Language (XML), internal and external enterprise-level interactions are enabled. A feature of HTTP is the typing and negotiation of data representation, allowing systems to be built independently of the data being transferred. Similarly, XML enables content to be stored, tagged, and recalled, permitting on-the-fly assembly of documents in completely different forms (i.e. printed documents or Web-based, on screen displays).

Extensible Markup Language (XML)

According to a CAP Ventures survey that was conducted in 2001, 82% of small companies and 76% of large companies rated XML capability as critical or very important. The year before, only 50% of the respondents that participated in a similar survey were concerned with XML. It has emerged as a point of interest and concern among managers, executives, and technicians, largely because there is an opportunity associated with XML that they all recognize.

In our survey of Service Providers who work with transaction documents, we found that 30% of our respondents already have active XML-compliant applications in use. Other XML-compliant applications are already working into the enterprise. PPML is an XML-compliant application for Personalized Print, while JDF is an XML-compliant application for tagging information about print devices and print handling. ADIS is an emerging XML-compliant standard that covers postal mail addressing.

An outgrowth of the move toward tagging document elements is the emergence of storage technologies, built specifically for the XML environment. XML data storage technologies enable XML content to be stored so that it can be searched in its XML format and retrieved into applications in XML format.

Companies like Software AG, Excelon, and Poet are responding to that market with XML Native Data Storage solutions. As these companies tout the advantages of storing, manipulating, querying, and managing data in a native XML format, existing relational and object oriented database vendors are responding by adding XML technology to their offerings. Some allow direct storage of XML objects and most now provide extraction routines to generate XML-compliant output.

On an industry basis, XML has come quickly to the financial services industry, and has sparked a number of industry-specific XML specifications. These include ISO 15022 XML, FpML, FinXML, MDDL, XBRL, IFX, OFX, IRML, and RIXML. These and other specifications govern the interchange of financial information for a variety of narrow reporting applications and broader e-commerce applications. In fact, this sector invested more than \$985 million on XML technologies in 2002, according to ZapThink.com. It is believed that expenditures in this market will grow to over \$8.3 billion by 2005. This includes a service component, which could account for half of this segment's revenue.

XML/EDI (Electronic Data Interchange)

XML/EDI is an XML application that provides a standard EDI framework built as an XML-compliant application, for financial interchange. It permits the exchange of similar data types, allowed by the original EDI environment—bills, purchase orders, invoices, credit requests, and claims, using programmatic interfaces. These may include Application Program Interfaces (API), Web automation services, database portals, or other processes that allow a document or message to be searched, decoded, manipulated, and consistently displayed. XML/EDI leverages the existing EDI technology, which includes an extensive set of EDI dictionaries and extends it to include the required business language, rules, and objects to make it XML-compliant.

Summary

We continue to see a strong commitment to paper-based communications. Over time, however, consumers and application owners expect that the process of printing and mailing documents will give way to online delivery. Transaction documents such as invoices, statements, trade confirmations, and proxy statements will be the first to move online, followed by direct mail that supports marketing efforts. This is occurring at a slower pace than most observers has originally imagined, partially due to consumers' unwillingness to view and pay bills from their home computers. Nevertheless, there has also been a lack of investment in the infrastructure needed to support the secure Internet delivery of transaction documents. Time, education efforts, and infrastructure improvements will ultimately change customers' perceptions and make online delivery more attractive.

This document was excerpted from a CAP Ventures document entitled "The Future of Mail & Transaction Documents." The complete report is available immediately for purchase. For more information, please contact Stewart MacDonald at (781) 871-9000, ext. 175 or via e-mail at stewart_macdonald@capv.com.

Charlie Corr, Paul White