MADISON | ADVISORS

Enterprise Output and Customer Communications Expertise

Document Composition Market Study

A Madison Advisors Report

June 2004

TABLE OF CONTENTS

Executive Summary 3
Document Development 4
Minimum Solution Requirements: Feature Set and GUI 6
Testing: Initial Design Vs Maintenance Requirements 7
Breadth of Solution 8
Composition Tool Market Advances 12
Market Consolidation is Imminent 13
Best Fit 15
Best Practices 16
Solutions at a Glance 17
- Vendor Contact Information 17
- Platform Support by Solution 18
- Cincom, intelligent Document Solutions 5.1 19
- Docucorp, Docuflex 11.0 21
- Docucorp, Documaker 11.0 23
- Document Sciences, xPression 1.3 25
- Elixir Technologies, Opus 4.80 27
- Exstream, Dialogue 4.0 29
- GMC, PrintNet T Triple Suite 4.1 31
- Group 1, DOC1 Series 5.0 33
- ISIS, Papyrus 6.0.9 35
- Metavante, CSF Designer 4.0 37
- PrintSoft, PReS 3 39
- Sefas Innovation, Open Print MiddleOffice 5.2 41

Conclusion 43
About Madison Advisors 44

EXECUTIVE SUMMARY

Madison Advisors has recently completed an extensive study of the document composition market in which we assessed market trends and demands, as well as the latest solution advancements. Key findings from the study include:

- **Feature set and GUI are no longer a differentiator** – they are now the minimum requirement for vendors entering new markets
- **When assessing solutions, organizations need to place more emphasis on application maintenance requirements** – maintenance will consume up to 80% of the resources, as opposed to 20% for initial document design
- **All tools are not the same** – there is wide disparity in the market when it comes to the breadth of capabilities from a given solution
- **End users are in the market** – whether they have none, multiple, or home-grown solutions, organizations today are looking for a new, consolidated solution for their document composition needs
- **There are too many "me-too" technologies** – expect to see market consolidation begin within the next 12 months

VENDOR PARTICIPANTS

Cincom, iD Solutions 5.1

Docucorp, Docuflex 11.0 and Documaker 11.0

Document Sciences, xPression 1.3

Elixir, Opus 4.80

Exstream, Dialogue 4.0

GMC, PrintNet T Triple Suite 4.1

Group 1, Doc1 Series 5.0

ISIS, Papyrus 6.0.9

Metavante, CSF Designer 4.0

PrintSoft, PReS 3

Sefas, Open Print MiddleOffice 5.2

Madison Advisors' study spanned the demand and supply side of the document composition market. We have over two years of consulting engagements with users of composition tool solutions through which we've gained first-hand insight into the document composition applications and requirements of myriad organizations. Next, in the second quarter of 2004, we assessed the latest advancements from the composition tool vendors. We spent a full day with each vendor participant, conducting a hands-on assessment of each solution.

This report presents the results of our extensive study on the document composition market. We review the key market drivers, compare the solutions, discuss the best fit for each solution, offer insight into the best practices of organizations that are highly successful with document composition, and, finally, provide an overview of each solution that we assessed.

DOCUMENT DEVELOPMENT

Document composition tools are typically used to develop transactional and personalized documents. These documents range in complexity from simple direct mail pieces with variable name and address to highly complex consolidated statements that pull data from various legacy systems to present multiple transaction types and data-driven graphics.

Transactional documents include statements, bills, and invoices, which are driven by a business transaction. These documents use sophisticated tables to display individual transactions within a given time period; totals and subtotals that have been calculated within the composition engine; and notification of payment due or account status.

Personalized documents are assembled from objects that typically include pages, text blocks, images, and forms. Business rules are used to drive the personalization within each document. The objects can be designed externally or within the composition tool and stored in an object library for reference. Stored objects can be used repeatedly in a single document or referenced across multiple documents.

One straightforward approach to the document composition market is to compare the solutions' support for complex documents to their overall ability to scale across different types of applications. Complex documents often require support for dynamic tables, data-driven graphics, calls to external applications, and full-color designs. Supporting complex documents requires sophisticated functionality on the part of the composition solution. However, highly complex documents are not always produced in high volumes; therefore, support for high-volume production isn't always required.

Scalability, on the other hand, is an indicator of the range of application types that a product is able to produce – e.g. transactional and/or personalized. Factors to consider for scalability include document generation speeds (not assessed for this market study) and the breadth of application types for which the product has features to support. For example an organization may have promotional documents with image placement and manipulation, and process color requirements, as well as regulated documents with requirements for restricted editing and routing/approval workflows.

The figure below compares the solutions in this study based on the ability to support complex documents while also scaling to support multiple application types. Vendors are listed alphabetically within the bubbles – the solutions are applicable for the entire area of the bubble in which they are contained.

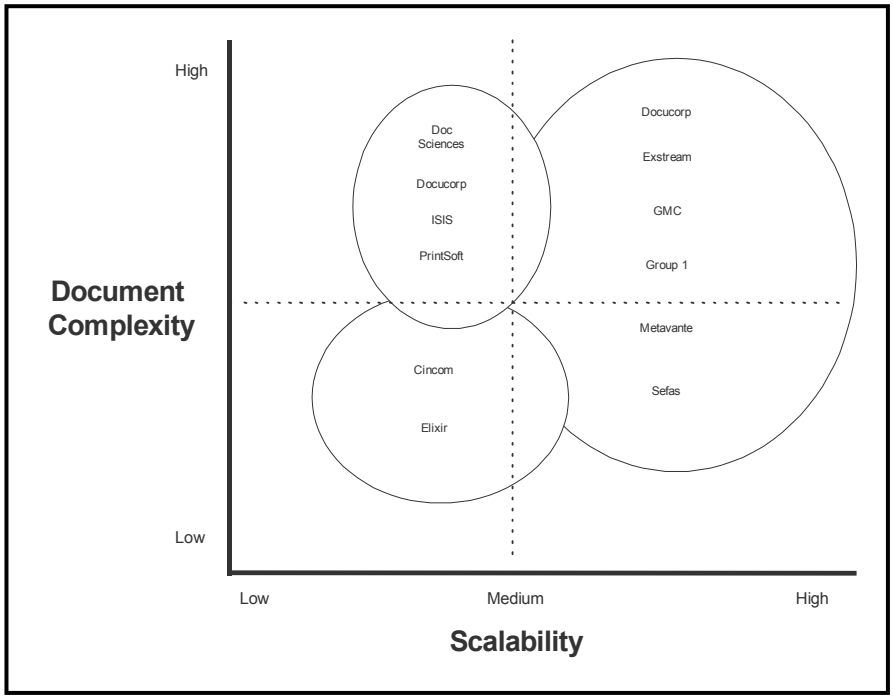

Figure 1 – Comparing Solution Support for Complex Documents vs. Scalability

Clearly, organizations use different types of solutions for different applications. For example, the organizations in our study use letter writing applications or page-based solutions for their smaller, less complex applications. These applications are typically contained within a single department or generated directly from host systems. For their larger applications, they typically use legacy applications or host-based document composition tools.

However, the majority of organizations in our study also expressed an interest in consolidating their document composition solutions. Figure 1 above can help organizations assess the different types of solutions for different applications and requirements. The tools in the upper right hand of the chart are best suited to handle a wide breadth of application types due to their scalability across application types and support for complex documents. However, they might be overkill for simple documents. Those in the lower right are better suited for specific applications with simple requirements.

MINIMUM SOLUTION REQUIREMENTS: FEATURE SET AND GUI

Just a few years ago, graphical user interfaces (GUIs) for document design were new in the document composition market, and, hence, touted as product differentiators. They have quickly become commonplace among the market leaders and are now a standard requirement for making it to the short list. Each vendor's GUI is different, however, and targeted toward different user skill sets, verticals, or applications.

Organizations frequently redesign their existing documents to take advantage of the new features available for more elegant presentation. Despite some differences in functionality, all of the products we reviewed allow designers to create and apply styles to text, draw lines and boxes, or import images. Even advanced features – creating data-driven 2D and 3D graphics or transactional tables – can be done with all of the products reviewed. The methods used to create the graphics and tables can be very different, so organizations should evaluate each product for ease of use, but, ultimately, users will become accustomed to how the chosen product works.

Some GUIs can support a wide breadth of user skill sets. For example, Metavante CSF Designer looks very much like Microsoft Word, allowing those with basic word processing skills to design simple letters, while experienced designers can use the product's advanced features for more complex documents. ISIS Papyrus, on the other hand, is geared toward creating complex document designs. Many of its features are accessed from a drop down list of icons, which requires training.

In addition, many vendors have developed browser-based interfaces for distributed document assembly and form fill. Although few are fully functional design tools, these interfaces provide a necessary component to numerous types of applications. For example Docucorp's Documaker provides secure access to document templates, which can be assembled and completed through the browser, then submitted for local or batch printing. Sefas MiddleOffice is a very robust browser-based interface with much of the same functionality as the desktop client. This solution allows document designers who are distributed throughout the enterprise to collaborate on document creation using a common repository.

With the added complexity of regulatory requirements and the influence of marketing, document composition now requires input from multiple departments throughout the enterprise. Typically, collaborative workflow is required to carry the document design to every required approver, and track his or her approval. Collaborative workflow also requires the ability to make annotations on documents as part of the review cycle and re-direct the work back to the designer if necessary. Workflow is one area where the products are not at parity today. Although each vendor's product supports some level of workflow, the variances are substantial.

Of the products evaluated for this study, Madison Advisors did not find one that supports all of the workflow functionality we consider necessary for a complete collaborative workflow system. Exstream Dialogue is the most impressive and includes a configurable workflow process with multiple workflow steps and approval groups that can be matched to existing business approval processes. Group 1 also includes a strong workflow system with approval for objects or entire documents.

TESTING: INITIAL DESIGN VS MAINTENANCE REQUIREMENTS

With the availability of GUIs for document composition tools, it is easier than it used to be to make improvements to documents while they are running in production. Traditionally, with mainframe-based tools most of the design work was handled during initial development. Now with GUI-enhanced solutions, organizations introduce frequent changes to their documents. The burden of making and implementing these changes is placed on document developers. While seemingly easy, organizations often overlook the resource requirements associated with the maintenance and updates of their documents.

Every time a document design is changed developers need to test the new design against existing data sets and scenarios to ensure that the change does not "break" other document functions or the design by introducing additional pages or unpredictable presentation results. Testing often requires scheduling time on the production equipment to produce output, or viewing fully composed documents online.

New software functions are emerging to address this interruption to the production schedule. For example, Group 1 DOC1 Series 5 includes a testing tool that does a binary comparison of two output files. It identifies differences between the two files and can be tuned to ignore expected changes, i.e. the planned enhancements that drove the alteration in the first place.

Changes to the format of the source data may also require updating the document design. Vendors with front-end data preparation tools, such as GMC and Group 1, allow data designers to accommodate these changes without having to edit the document design.

In addition to customer-driven changes, software upgrades are another change that may require more resources than initially planned for. Upgrades often drive the need for testing mission-critical applications to ensure that all of the features are working correctly and that the resulting output is the same as it was before the upgrade.

Vendors frequently do extensive application testing using documents and data from their customers as part of the product development cycle, but not all customer applications can be tested. Given this, organizations should ask their vendor about running new releases in parallel with current implementations throughout a testing cycle, or discuss the process for rolling back an upgrade if problems occur. Several of the vendors in our study run a binary comparison of output for all documents submitted by customers for the test case during their quality assurance testing of new product releases.

Maintenance of the data and document design or the composition software itself also requires organizations to devote resources to testing. Organizations are learning that the ability to support document applications over the long term is more important than upfront ease of use and are sharing these challenges with the vendors. The vendors in turn are beginning to develop the functionality to reduce the resources required for ongoing maintenance.

BREADTH OF SOLUTION

For many organizations, composing the document is only the first step in an extensive production process that results in the delivery of a personalized physical or electronic document to the correct recipient. The primary focus of our study was the composition functionality of the various tools, but in many cases, these tools are inexorably linked to a software suite that supports the entire production process.

The complete composition-to-delivery process begins with data preparation and document design and ends with the delivery of an electronic or paper document. Traditionally a number of vendors are involved in this process, which includes tracking the status of each job, document, or page from creation through delivery. Integrating software from various vendors can be a challenge and requires additional testing. Broad solutions which cover multiple process steps and still meet all of the organization's requirements can reduce the time and effort required to bring a new document application into production.

For example, Sefas OpenPrint is a complete software suite capable of managing the production process from end-to-end with specific modules for data manipulation, shop floor management, and automated document production. Given this, less integration and software maintenance is required for solutions built on OpenPrint.

Documents have become more complex with increased use of data-driven personalization, selected use of inserts, and alternate delivery methods. With this added complexity, it is more difficult to monitor production and ensure that each unique document has been produced in its entirety, especially when several software and hardware systems need to be integrated across the entire process. During our study, Madison Advisors found that document composition vendors are assisting their customers by developing additional software modules to support both front- and back-end processes.

Comparing a solution's base functionality to its production functionality is one way to measure the breadth of the overall solution. Base functionality indicates the breadth of components each solution provides to support document composition, including data preparation, Unicode support, re-usable document objects, and document archiving. Production functionality indicates the range of features provided by each solution for document production including print description language (PDL) support, 1D and 2D barcode generation, and production management.

The table below compares each solution's breadth of base functionality against its production functionality.

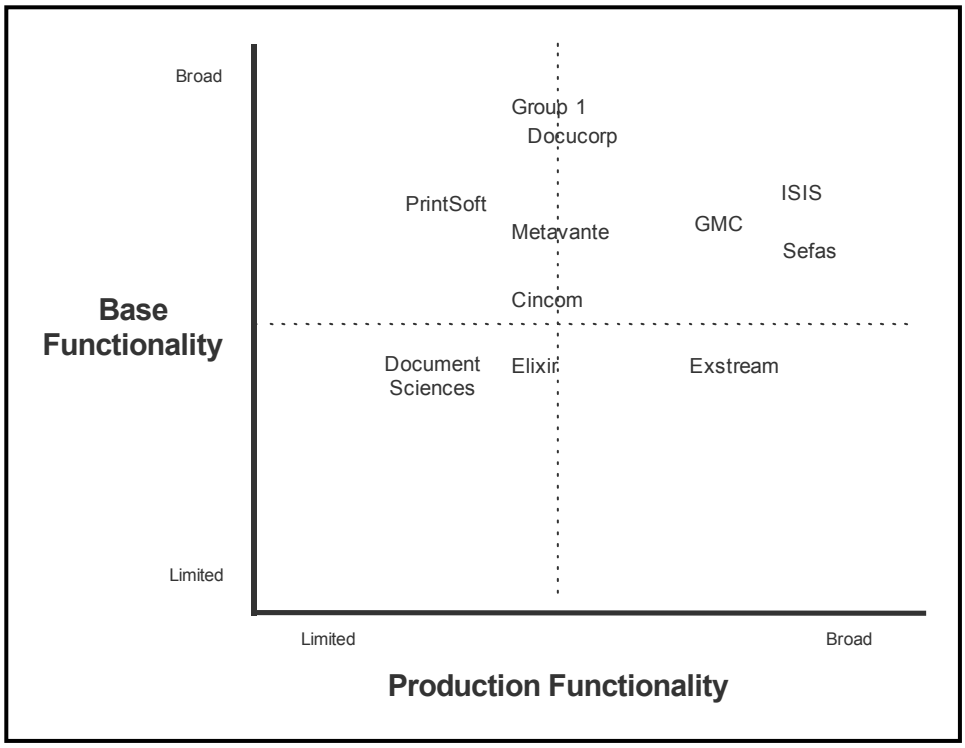

Figure 2 – Comparing Base and Production Functionality

Solutions like those from Group 1 and Docucorp offer extensive base functionality by packaging all of the necessary components into one solution. Sefas and ISIS excel in terms of production functionality. They include advanced file processing to allow multiple PDL files to be parsed and merged based on index values. Overall, Madison Advisors found that solutions with extensive support for specific vertical applications provided more base functionality, while horizontal solutions provided a broader range of software components.

Because every organization has a unique process for document production, product suites must be flexible and allow adjustments for various operations. The vendors cannot anticipate every requirement, so they typically design their product architectures with open application programming interfaces (APIs) that allow integration between other corporate systems and the document composition tool. For example, Cincom iD Solutions includes an extensive set of APIs and support for MQ Series messaging to allow integration with ERP, CRM, and content management systems across multiple platforms.

Another approach that vendors are taking is to focus on the specific requirements of a given vertical. Several of the larger vertical industries with requirements for complex document composition must also adhere to industry or government regulations for both production processes and document characteristics. Docucorp Documaker provides an extensive library of forms and templates to meet the requirements of the insurance industry. Similarly, Document Sciences xPression utilizes client interfaces that are customized to support specific processes, such as large group insurance contracts.

If your organization has specific vertical requirements, a good way to assess the overall breadth of a solution is by comparing its vertical functionality to its production functionality. Vertical functionality indicates the level of support for specific applications such as customer relationship management (CRM), electronic bill presentment and payment (EBPP), and customized client interfaces for specific applications such as insurance policies and financial statements. As mentioned earlier, production functionality indicates the range of features provided by each solution for document production.

The figure below compares the solutions' overall production functionality against their functionality for specific verticals.

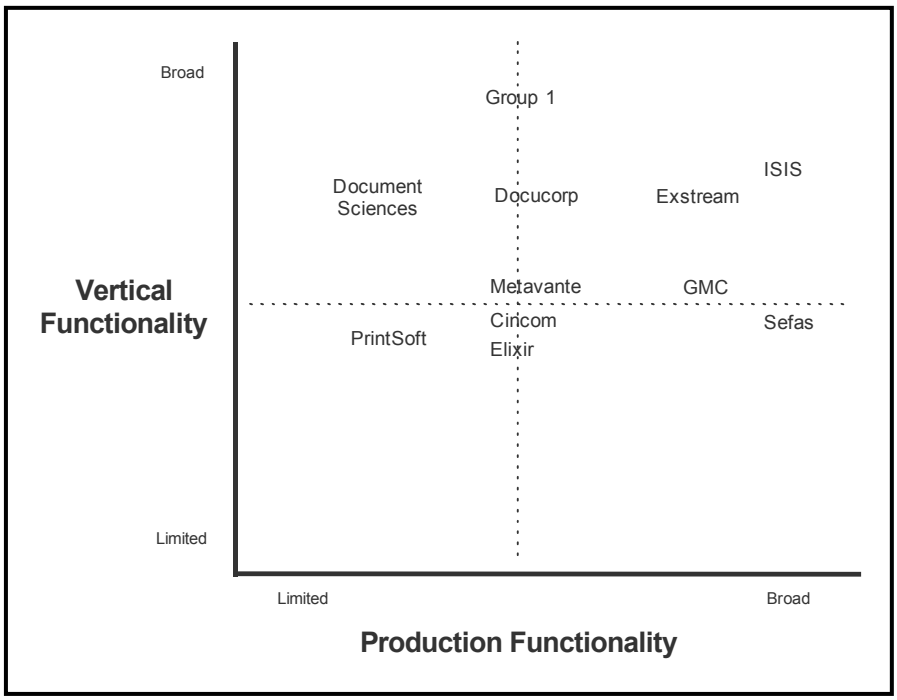

Figure 3 – Comparing Production vs. Vertical Functionality

Overall, Madison Advisors finds that vendors use packaged APIs or new software modules to build on the established core functionality of document composition. Packaged integration to CRM applications is used to gather data for personalized messaging in documents. Workflow modules are used to apply existing business processes to the document development cycle. These new components are used by vendors to distinguish their products in a crowded market and provide more value to existing clients.

COMPOSITION TOOL MARKET ADVANCES

Over the course of our study, vendors and end users alike indicated an increased interest in composition tools. The market activity comes at a time when most end users are defining strategic or next-generation customer communication delivery platforms, and are looking for a future technology platform to build upon. In response to this, the vendors have extended the functionality and technical reach of their solutions, e.g. to EBPP solutions or integrated archives.

During our study we found that a small percentage of large organizations do not have any commercial document composition products. These organizations generally rely on standard programming languages, such as COBOL, assembler, or C, to produce the desired PDL. While a relatively small percentage – 8% of the organizations in our study – some of these organizations are large, multiple-business-line or service-bureau organizations, as opposed to small, direct mail operations.

Alternatively, the significant majority of organizations in our study maintain multiple tools for document composition. Of those end users that maintain multiple solutions, occasionally one of the tools utilized is a home grown solution, which continues to be used for smaller document applications. Clients in this group are looking to consolidate in order to reduce excessive maintenance costs and to improve operational efficiency. Many organizations are looking for more sophisticated capabilities than are currently provided within their current tools, and are looking to replace all of their products with a single solution suite.

The figure below represents the gamut of organizations with no document composition tools, single solutions, and with multiple solutions.

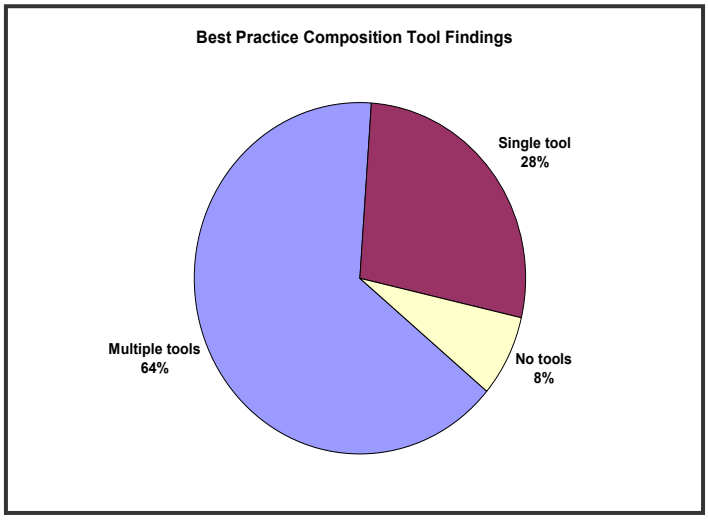

Figure 4 – The Number of Composition Solutions within Organizations

The desire to standardize on a single tool isn't new, but unique application and business demands typically drive organizations toward different "best-in-class" or best-fit solutions. The next-generation document composition product suites have much broader capabilities. Many support high-volume, complex batch document creations, as well as interactive, low-volume customer correspondence within a single product suite. While this advancement will reduce the number of organizations with multiple products, the one-product-fits-all scenario can also lead to the sub-optimization of certain aspects of your customer communication strategy. The key to success is finding the right ratio of product requirements that provides your organization with an enduring strategic advantage.

MARKET CONSOLIDATION IS IMMINENT

While we conducted extensive, hands-on assessments of only the top dozen vendors in this study, Madison Advisors tracks over twenty vendors in this space. Not all vendors provide products that support all applications, and the lines of differentiation are continually blurring. Most of the market leaders have released next-generation toolkits that simplify and reduce the complexity of offerings targeted at the business analyst or light user. On the other hand, the lower end of the market continues to add features and functions that mimic the higher-end products.

The figure below shows the estimated revenue share of the vendor market.

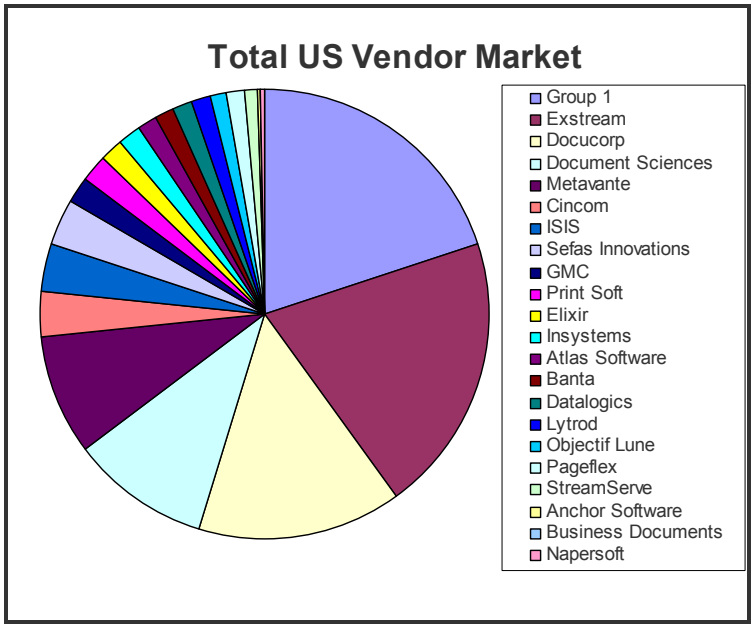

Figure 5 – Vendor Market by Revenue Share

The result of the solution provider activity is more confusion on the consumer side, and vicious market attacks by the vendors. Our opinion is that the current circumstances are unsustainable, and that market consolidation is imminent. The recent acquisition of Group 1 by Pitney Bowes is only the first step in the market consolidation necessary to move this industry forward, gain interest of capital markets, and increase traction within higher levels of management.

The economics of the market – the relatively low acquisition cost of the low-end solutions, the market penetration of these solutions, and their low maintenance requirements – create high barriers to exit, thwarting consolidation. Organizationally, the cost of switching is always high, and the risk of change for the sake of change is nearly impossible to justify.

On the other hand, the convergence of production publishing and print-on-demand applications with traditional, transactional regulatory documents and invoices will begin to drive away organizations from the low-end solutions to a "one-tool-fits-all" model. In this scenario the large suite providers will prevail, especially in light of the increased usability, modularity, color, and while space management support within their offerings. Look for more consolidation and the number of vendors to drop in half in the next twelve to eighteen months.

BEST FIT

While most of the vendors in our study target a variety of verticals and applications, there are best fits for each tool. The table below provides Madison Advisors' perspective on the best fit for each solution in our study.

SOLUTION	BEST FIT
Cincom Intelligent Document Solutions 5.1	iD Solutions is a good fit for a wide range of transactional applications with strong support for text-based document assembly. The suite is an open, multi-platform solution well suited for corporate environments that require integration with business systems.
Docucorp Docuflex 11.0 Documaker 11.0	Docuflex is well suited for long or complex text documents based on style sheets or templates within any industry. It supports both transactional and promotional document types. Documaker is a good fit for forms-based transactional applications in the financial services and utilities industries, using automated or manual data entry.
Document Sciences xPression 1.3	xPression supports correspondence, policies, and contracts with specific client interfaces for collaborative and work-in-progress documents. The software is well suited for insurance and financial services organizations utilizing application servers and Java.
Elixir Opus 4.80	Opus can be used for both transactional and promotional applications with strong color and variable PostScript output support. The software is a best fit in mid-market insurance, financial services, and service bureau organizations.
Exstream Dialogue 4.0	Dialogue supports a wide range of transactional and promotional applications with an emphasis on customer communications and marketing campaign management. The software is suitable for large organizations across industries.
GMC PrintNet T Triple Suite 4.1	PrintNet T is a good fit for both transactional and promotional applications with strong support for color and variable PostScript. The Macintosh design client is suited to commercial print and advertising industries; while the suite is suitable for both corporate and service bureau environments.
Group 1 DOC1 Series 5.0	DOC1 Series 5 is suited for a wide range of transactional and promotional applications with strong data processing and marketing campaign management. The software is a best fit for large organizations requiring process automation for paper and electronic delivery.
ISIS Papyrus 6.0.9	Papyrus supports a wide range of transactional and distributed applications with a thin client for document creation. The software is suitable for integration into large organizations across industries.
Metavante CSF Designer 4.0	CSF Designer is a good fit for transactional and direct mail applications with strong support for customer communications. The application serves departmental and enterprise environments in all verticals.
PrintSoft PReS 3	PReS supports both transactional and promotional applications with strong support for color and complex design requirements. It is well suited for service bureaus, financial services, and utilities.
Sefas Open Print MiddleOffice	MiddleOffice is a good fit for both transactional and promotional applications with a robust browser client. The product is well suited for high-volume production environments with requirements for distributed document design.

Table 1 – Best Fit for Each Solution

BEST PRACTICES

The best practices observed during our study indicate that organizations are spending more time, energy, and money on customer communication. Most organizations now realize that hardcopy systems are not going to be replaced by Web-based communications, and the objective is to leverage both channels to benefit the consumer and the organization. The best practices listed below demonstrate techniques used by leading organizations that are interested in cutting costs, as well as improving the customer experience.

- **Document Redesign –** outdated designs confuse information delivery and impede comprehension, costing more than a poor company image. Leading organizations invest in specialized firms for document design and information delivery.

- **Standards and Flexibility –** adopting standardized market nomenclature and maximizing industry standards provide measurable operational savings and strategic leadership in the industry. In addition, the prudent and disciplined separation of function design and deployment extends application lifecycle, while providing additional feature and enhancement flexibility for future business and market requirements.

- **Including the Entire Enterprise –** work with all lines of business responsible for customer communication to create a common communication strategy, enhancing the single-most important interaction process between your customers and your organization. If you're sending multiple mailings to your customers on a monthly basis, you're missing branding and cross-marketing opportunities, spending more in postage than you should, and most likely aggravating your best clients. Think broad.

- **Setting Measurable Goals –** assess the current environment and identify methods for measuring the success of the project. Once changes to the documents or processes are implemented, begin measuring the impact of those changes and recording the results. Continued project support is easier to obtain if quantifiable results can be demonstrated.

- **Allocating the Necessary Resources to Support the Vision –** once created, ensure support for the strategy is demonstrated with adequate budget and resources to ensure success, as with any key enterprise function. Leading enterprises have created a new officer position, Chief Document Officer, to ensure customer communication is consistent and accurate. The CDO ensures that timing and privacy issues are addressed with appropriate archival, storage, and disposal protocols.

SOLUTIONS AT A GLANCE

This section provides information on each of the solutions that were assessed as part of Madison Advisors' study. It includes contact information for the vendors, an overview of platform support by solution, and finally, brief reviews on each solution.

VENDOR CONTACT INFORMATION

The table below provides contact information for each of the vendors that participated in this study.

VENDOR	HEADQUARTERS	CONTACT	CONTACT INFO
Cincom Intelligent Document Solutions 5.1	Cincinnati, OH	Lori A. Gelter	800-224-6266 513-612-2769 (international) info@cincom.com
Docucorp Docuflex 11.0 Documaker 11.0	Dallas, TX	Docucorp	214-891-6500 info@docucorp.com
Document Sciences xPression 1.3	Carlsbad, CA	Scott Samuels	760-602-1400 ssamuels@docscience.com
Elixir Opus 4.80	Ventura, CA	Kathy Dell	805-648-9127 kathy_dell@Elixir.com
Exstream Dialogue 4.0	Lexington, KY	Neal Gottsacker	262-375-2132 ngottsacker@exstream.com
GMC PrintNet T Triple Suite 4.1	Appenzell, Switzerland	Mark Maragni	800-250-1850 x14 m.maragni@gmc.net
Group 1 DOC1 Series 5.0	Lanham, MD	Clarence Hempfield	301-918-0747 Clarence_Hempfield@g1.com
ISIS Papyrus 6.0.9	Vienna, Austria	Carol Fiore	817-416-2345 carol.fiore@isis-papyrus.com
Metavante CSF Designer 4.0	Milwaukee, WI	Mike Kaminski	414-362-6038 mike.kaminski@metavante.com
PrintSoft PReS 3	Melbourne, Australia	Scott Bannor	630-625-5400 sbannor@printsoftamericas.com
Sefas OpenPrint MiddleOffice	Paris, France	Randy Hardy	516-449-5154 Randy.Hardy@sefas.com

Table 2 – Vendor Contact Information

PLATFORM SUPPORT BY SOLUTION

The table below reviews the platform support for each solution in this study.

VENDOR	SUPPORTED SERVER OPERATING SYSTEMS	
Cincom Intelligent Document Solutions 5.1	▪ Unix ▪ Windows 2000 / 2003	▪ ZOS
Docucorp Docuflex 11.0 Documaker 11.0	▪ HP/UX ▪ IBM AIX ▪ Linux	▪ MVS ▪ Sun Solaris ▪ Windows NT / 2000
Document Sciences xPression 1.3	▪ HP/UX ▪ IBM AIX	▪ Sun Solaris ▪ Windows 2000
Elixir Opus 4.80	▪ Windows NT / 2000 / XP	
Exstream Dialogue 4.0	▪ AIX ▪ AS/400 (PASE) ▪ HP-UX ▪ Linux ▪ MVS	▪ OS/390 ▪ Solaris ▪ Windows NT / 2000 / XP / 2003 ▪ z/OS
GMC PrintNet T Triple Suite 4.1	▪ AIX ▪ AS/400 ▪ Linux	▪ MVS ▪ Windows NT / 2000 / XP
Group 1 DOC1 Series 5.0	▪ iSeries (OS400) ▪ Linux (Red Hat variants) ▪ 0S/390	▪ UNIX (Solaris, HPUX, AIX) ▪ Windows NT / 2000 / XP
ISIS Papyrus 6.0.9	▪ AIX ▪ DEC ▪ HP-UX ▪ Linux ▪ OS/390	▪ Sun ▪ Windows 98 / 2000 / XP ▪ Windows Server 2000 / 2003 ▪ Z/OS
Metavante CSF Designer 4.0	▪ IBM AIX ▪ MVS OS/390	▪ Sun Solaris ▪ Windows 2000 / XP
PrintSoft PReS 3	▪ Windows NT / 2000 / XP	
Sefas OpenPrint MiddleOffice	▪ AIX ▪ HPUX ▪ Linux ▪ MVS: USS	▪ Native Linux ▪ Solaris ▪ Windows NT / 2000

Table 3 – Platform Support by Vendor and Solution

The remainder of this report provides overviews of each of the solutions that we assessed as part of this study.

CINCOM, INTELLIGENT DOCUMENT SOLUTIONS 5.1

➢ **ORGANIZATION**

With an emphasis on streamlining business processes, Cincom provides software products and consulting services to access corporate data from disparate platforms, support manufacturing control systems, and manage and generate personalized business communications. Cincom is a privately held company, incorporated in 1968 and headquartered in Cincinnati, Ohio. Cincom has a long history of developing software for clients in the manufacturing and financial services industries to improve productivity, reduce production costs, and provide consistent branding.

➢ **SOLUTION**

Cincom intelligent Document Solutions provides organizations with the design tools and production engines necessary to develop and produce high-volume, fully composed or interactive customer communications. The product includes extensive APIs and exits for integration into an organization's existing business processes. Key vertical applications for the solution include insurance correspondence and financial statements, but it is a good fit for a wide range of horizontal applications.

➢ **WORKFLOW & ADMIN**

The product's administration interface allows users to define document- and component-level security for the design environment. The application has its own security model or allows the import of users and groups from LDAP and Microsoft Active Directory. Access to various activities, such as viewing, editing, or printing documents is defined through additive rights. In addition, the use of individual scanned signatures can be assigned to groups, allowing anyone in the group to place that signature image on a document.

Intelligent Document Solutions provides COM extensions for integration to external business process management products. The extensions allow an external workflow to control the routing and approval of documents prior to production. The approval can be assigned to a single user or one of many and can be applied to entire documents, paragraphs, or scanned signatures.

THE SKINNY

With intelligent Document Solutions, Cincom strives to give organizations additional integration for more business process flexibility through iD Web Document Services. The product's robust API set and multi-platform architecture allow for easy integration of the design interfaces, production engines, and Web components into an organization's existing environment, providing a single entry point for the creation of highly personalized customer communications.

Key Strengths

- Extensive APIs and COM exits allow for integration into existing environments
- Knowledge Builder tool provides complex rule development

Areas of Caution

- Different composition engines positioned for different document types
- iD Print Manager does not produce PostScript output

- **DATA HANDLING** — The product provides basic data handling and supports ODBC, JDBC, and XML input, as well as interactive, user-entered data. Variables designated for interactive input can be free form or linked to a drop-down list. These variables can also be used to trigger other events based on the logic built into the model document.

- **DESIGN INTERFACE** — The intelligent Document Solutions design interface provides a tree structure organization of documents on the left with a Windows Explorer like view of document components on the right. Designers are able to double-click on any component to launch the editor and apply conditional logic or positioning on the page. A Microsoft Word interface is used to create conditional-logic-driven tables with headers and footers. The product includes Cincom's Knowledge Builder tool, an artificial intelligence engine for creating complex rule sets for document assembly. Knowledge Builder supports backward chaining algorithms to determine rules, based on a desired structure.

  For ease of maintenance, designers can search on a text string or wildcard across all documents to find where a specific piece of text or component is used. From the design environment, a preview can be generated, which will allow the designer to designate sample data and step through the paragraph and variable field selection to test the conditional logic.

- **MESSAGING** — intelligent Document Solutions Web Document Services provides a browser-based interface for the creation of interactive documents. The application guides users through the process of selecting paragraphs, entering variable values, and choosing a signature. Text paragraphs can be viewed and edited through a Microsoft Word plug-in. A COM exit is available for calling live data from a database or mainframe environment.

- **OUTPUT MGMT** — intelligent Document Solutions offers three production engines intended for low-volume, text-based, or high-volume environments. All three compose documents in an internal metafile format. Sorting and indexing are performed on the internal metafile format. The intelligent Document Print Manager produces the output in AFP, Metacode, PCL, PDF, XML, RTF, or Microsoft Word. A TIFF image format can be generated through a conversion from another format. Intelligent Document Print Manager submits the output to a printer or the integrated Esker DeliveryWare for output to fax, SMS, e-mail, or Web. Output can also be directed to the CinDoc archive or a third-party archiving solution.

DOCUCORP, DOCUFLEX 11.0

➢ **ORGANIZATION**

Headquartered in Dallas, Docucorp International, Inc. (NASDAQ: DOCC), provides software, professional services, and ASP hosting services. A public company since 1998, Docucorp's mission is to optimize business relationships by providing businesses today with the right information, at the right time, and in the right place. To do this, it offers dynamic solutions that acquire, manage, personalize, and present information for the creation, management, and publishing of business communications.

➢ **SOLUTION**

Docucorp's Docuflex allows for business-user-driven and automated workflow-driven assembly and production of complex documents using cascading style sheets. Developers can integrate static components, variable data, and business rules into a single document. Docuflex supports a wide range of applications including both transactional statements and promotional materials for any industry.

➢ **WORKFLOW & ADMIN**

The product's administrative interface is used to manage security and content style sheets. Security can be assigned to individual content frames, allowing control for individual frames to be assigned to different groups in the organization. Default style sheets can be shared across documents and applications.

Docuflex includes workflow with the ability to control security on approved content. The product's drag-and-drop interface for workflow design supports parallel and serial processes with support for full numeric version control and annotations.

➢ **DATA HANDLING**

Docuflex includes a module for consolidating data from multiple sources, including text files, XML files and various database formats. The module is capable of merging multiple sources and formatting the data for use with a specific application.

THE SKINNY

Docucorp's development direction is to encapsulate the core technology into Web services and extend integration with vertical market applications and industry-specific forms libraries. Docuflex is well suited for long or complex text documents within any industry.

Key Strengths

- Robust workflow client with desktop and browser-based support
- Integrated module for data source consolidation and data formatting
- Flexible document layout model, based on replaceable and configurable style sheets

Areas of Caution

- No specific integration to CRM or ERP systems for marketing campaign messaging
- No support for variable PostScript publishing formats
- No message prioritization or weighting between messages

Docuflex can also use Metacode, AFP, or PCL print streams as a data source by searching for page breaks, mapping the data structure, and then mining the data. It allows document design without an attached data file thus separating data preparation from design.

- **DESIGN INTERFACE** Docuflex develops applications in an integrated development environment (IDE) by assembling objects in document sections from a content library and applying cascading style sheets with tight layout controls for frames, boxes, and shading. Document elements, including forms, graphics, fonts, and text blocks can be created in standard desktop tools and accessed by Docuflex. The product can flow text between frames, rotate frames, and automatically create a table of contents. Frame-based tables allow any type of content, including text, images, or additional tables to be placed in any table cell. Once defined, any object can be referenced multiple times. The product supports RGB and CMYK color spaces, as well as highlight color palettes.

  Document projects may contain multiple layouts and templates. By associating more than one template to an application, multiple brandings of the same document or data can be presented. For example, a Web-oriented style sheet can be applied to a document to change the look and feel while retaining all the same business rules and accessing the same data.

- **MESSAGING** Messages are created and maintained through the Docuflex interface using frame-level security to limit access to one or more frames on the document. Docuflex provides dynamic messaging based on rules. Messages are designated as mandatory or optional. Widow/orphan controls link messages to content objects so that if the content object moves to another page, the message moves as well. Messages can be designated to fit within existing white space or create a new page if necessary.

- **OUTPUT MGMT** Docuflex uses print definition files to configure the output format and device. The product allows output to multiple recipients in multiple formats and can split files using indices. The engine can produce cover sheets and add barcodes during the production process. The production engine outputs AFP, Metacode, PostScript, PDF, PCL, and HTML.

DOCUCORP, DOCUMAKER 11.0

➢ **ORGANIZATION**

Headquartered in Dallas, Docucorp International, Inc. (NASDAQ: DOCC), provides software, professional services, and ASP hosting services. A public company since 1998, Docucorp's mission is to optimize business relationships by providing businesses today with the right information, at the right time, and in the right place. To do this, it offers dynamic solutions that acquire, manage, personalize, and present information for the creation, management, and publishing of business communications.

➢ **SOLUTION**

Docucorp's Documaker allows for operator-driven form fill and automated workflow to drive high-volume assembly and production of complex documents. With a strong position in the insurance vertical, Docucorp provides solutions for claims processing and policy production, as well as applications in the financial services and utilities industries.

➢ **WORKFLOW & ADMIN**

The product's administrative interface is used to manage users and document security. It has a graphical interface for editing the INI files that control system settings. Library Manager allows users to organize and maintain document components by establishing effective dates, setting versions, and promoting components into production.

The product's workflow interface presents items to be reviewed and allows for approval with automated routing and ability to control security. The workflow system supports work in progress, ad-hoc routing, and e-mail.

➢ **DATA HANDLING**

Documaker is capable of accepting data from a flat file, SQL and ODBC databases, or an XML file. The system also supports manual data entry. Its data handling module is a strong extract-transform-load (ETL) tool capable of consolidating data from multiple sources and formatting it for use in a given document application. Data can be accessed in real time from databases using MQ Series.

THE SKINNY

Docucorp's development direction is to encapsulate the core technology into Web services and extend integration with vertical market applications and industry-specific forms libraries. Documaker is well suited for correspondence and policy production within the insurance industry.

Key Strengths

- Multi-platform architecture built on published APIs for ease of integration to external systems
- Ability to control generation and distribution of documents to various recipients
- Strong data source consolidation and formatting

Areas of Caution

- Suited for development of transactional documents
- No specific integration for marketing campaign messaging

- **DESIGN INTERFACE** — Documaker Studio acts as a single interface for multi-user development of forms-based applications with an underlying object library that supports check-in and check-out of any object. All of the forms can be set up at one time and organized according to three key fields. Forms can be edited, previewed, and assigned to one or more recipients as required by the application. Conditional logic is used to determine which objects are included in the document, based on the data set.

  Documaker Studio includes a visual debugger that processes applications based on an extract file of sample data. The debugger can be configured with checkpoints to stop the process and display a preview of the form being built, the field values on the form, and a listing of any errors that have occurred.

- **MESSAGING** — A Web client allows users to perform ad-hoc processing and save the documents into a work-in-process workflow, view a PDF proof, or submit the document into production. The Windows Explorer client accesses the same form and resource library and uses the same output formats as the Documaker Studio client.

- **OUTPUT MGMT** — Documaker processes the data against the rules engine to generate a table of transactions, which can then be sorted or delivered to a third-party mail sorting system. Documaker then merges the transactions with forms and resources from the library to compose an intermediate format for multiple recipients that can be archived and re-used for producing additional output formats. The production engine compares the output against a record of recipients to generate the device-specific output for all of the necessary recipients. Final output can be in AFP, Metacode, PostScript, PDF, PCL, or HTML.

DOCUMENT SCIENCES, XPRESSION 1.3

➢ **ORGANIZATION**

Document Sciences (NASDAQ: DOCX) is based in Carlsbad, CA and became a public company in 1996. It provides software and professional services for enterprise content processing and delivery in real-time and batch environments. Product offerings include industry-specific solutions for processing business contracts, including business correspondence, insurance policies, and quotes.

➢ **SOLUTION**

Based on the J2EE application server architecture, xPression fits within business processes and integrates with enterprise content management systems to produce interactive or high-volume business communications. With a heavy focus on insurance, Document Sciences provides solutions for property and casualty, life, health, and large-group contracts, which can be extended to include business contract solutions in a variety of other market segments.

➢ **WORKFLOW & ADMIN**

The product's Java-based administration interface is used to define access rights, workflow processes, job administration, and output management. Each application within the xPression suite has its own security and workflow that must be managed separately. Documents and content are assigned to a category and access rights are assigned at this level.

xPression's workflow allows for multiple approval and routing steps, which are configured by the administrator for each category. Entire documents or individual content objects can be approved and routed. Once complete, the content is routed to the assembly engine for immediate or batch production.

➢ **DATA HANDLING**

During development, the administrator assigns one or more data sources, which are accessed at run time by the xPression Content Assembly Engine. Data is used for processing business rules, to provide variable data for personalization, as well as for the creation of custom management reports. Variable fields are added to the document through the xPression Design and data can be entered interactively through the xPression Response or Revise interfaces.

THE SKINNY

Document Sciences' direction for xPression is to provide content integration and delivery of business communications within vertical applications. Overall, we feel that the product is well suited for policy and correspondence processes within the insurance industry.

Key Strengths

- Application server platform enables highly scalable processing
- Based on open architecture (Java, XML, Web services) for ease of integration
- Content can be created in any application and added to the repository as XML
- Flexible workflow included or can be integrated

Areas of Caution

- The current target market is insurance applications
- CompuSet publishing engine does not run on an application server
- Design rules engine lacks support for complex calculations and nested logic

Data can also be collected from any customer-facing application, such as a CRM or Web application that can deliver the data in an XML format.

- **DESIGN INTERFACE** — xPression Design interfaces with Microsoft Word for content creation and then assigns the conditional inclusion logic and attributes to each object. Conditional logic, based on the attributes, determines whether or not an object is included in a published document. The designer adds variable fields to the document and can see an HTML preview of the document with content stored in the repository.

- **MESSAGING** — xPression Response is a browser-based interface for requesting, previewing, and editing work-in-progress documents and submitting the document for publishing. The interface allows users to key in data or it can collect data for document assembly. It highlights optional content objects, which users can select and edit with a Java applet. Once completed, the document can be submitted through a workflow process for approval and production. Publishing and distribution are based on the selected output profile.

  xPression Revise is a browser-based application designed specifically for collaborative group insurance. Users can edit the document in Microsoft Word through the browser and make changes and add data to the document. The application lets the user edit the entire document or selected pieces and disallows modification of protected content. A workflow approval process with annotation capabilities routes the policy for approval. xPression Revise includes specific features for handling renewals of custom contracts, as well as amendment and endorsement processing.

- **OUTPUT MGMT** — The publishing engine converts content to the CompuSet format then outputs to PostScript, PDF, Metacode, or AFP for print production, archiving, or electronic delivery through a Web browser or e-mail. The output profile assigned to the batch job, assigned to the document, or selected by the user determines which format and production method is used.

  xPression is based on open standards, including J2EE, XML, and Web services. The xPression product suite is certified on BEA WebLogic and IBM WebSphere application servers, taking advantage of the built-in scalability, security, and fault tolerance. The product uses XML for data exchange between all the clients and the assembly engine.

ELIXIR TECHNOLOGIES, OPUS 4.80

ORGANIZATION

Founded in 1985 and headquartered in Ventura CA, Elixir Technologies develops software for variable document composition, resource management, and print stream transformation. Elixir's products are designed to help organizations develop solutions for electronic output and archiving.

SOLUTION

Opus provides mid-sized companies and service bureaus with the ability to compose a wide range of promotional or transactional documents. Elixir targets the offering primarily toward the financial services and insurance industries, as well as regional governmental agencies and service bureaus.

WORKFLOW & ADMIN

The product's administration interface leverages Windows users and groups to define permissions and roles for each user. The administration console also configures formatting engines and production output queues.

DATA HANDLING

Opus accesses input data from a single flat file, a database, or XML file via its dbDirect data prep module. The product accepts double-byte input, and both fixed and variable text can be output in double-byte character sets. Elixir PageMiner can extract data from Metacode, DJDE line data, or AFP data streams to drive the creation of new documents.

DESIGN INTERFACE

The Opus design interface provides a tree view of document design that includes the data elements, drawn objects, and conditional logic. This allows the designer to identify which data elements and logic are associated with each object within a document. Two data-driven graphic tools are embedded in the product for creating 2D and 3D graphics. The product supports CMYK and RGB color spaces, as well as Xerox spot color palettes.

The product also supports dynamic tables with repeating horizontal and vertical rows. Tables within tables are possible using different data record types.

THE SKINNY

Elixir's direction for Opus is to expand within traditional markets and develop new tools for Web-based document production and delivery. Overall, the product delivers solid functionality for the mid-market.

Key Strengths

- Strong support for color and variable color output print streams
- Modular system with tools for Xerox Metacode and IBM AFP resource creation
- Data extraction from legacy page formats

Areas of Caution

- Limited integration with line of business applications
- No support for LDAP – limits enterprise applicability
- Post-processing managed through INI files

- **MESSAGING**

The product supports dynamic messages consisting of both text and graphics. Message priority is assigned using conditional logic and is separate from the message. Opus calculates the white space during formatting and fits the message to the available area with an option to adjust the text point size if needed.

Opus WebService is a browser-based interface for customer or operator form fill via ASP or Java. Document designs and resources are developed in Opus and are used by the WebService server. Data is passed to the Opus composition engine and the composed documents can be delivered in real time to the Web browser, archived electronically, or printed to a local printer as PostScript or PDF.

- **OUTPUT MGMT**

The Opus formatter composes the documents in an intermediate format that combines the data, logic, and resources. The output engine produces AFP, Metacode, PCL, PostScript, PDF, VPS, PPML, and VIPP. A single job can be output to multiple formats and can be split based on conditional logic, number of records, number of pages, or by document for use in an archive. Pages can be imposed for simplex and duplex output or for output in booklet format.

EXSTREAM, DIALOGUE 4.0

➢ **ORGANIZATION**

Exstream Software, founded in 1998 and based in Lexington, KY, provides software and professional services to connect organizations with their clients through fully personalized communications delivered through multiple print, electronic, and interactive channels. Product offerings include personalized document creation for multi-channel delivery (Dialogue), rapid Web application development environment (Dialogue WebVerse), and AFP productivity tools (AFP Studio).

➢ **SOLUTION**

Dialogue provides a single environment for the design and production of high-quality, personalized documents with marketing campaign management and tracking. Exstream has a strong presence in financial services, insurance, and service bureau industries, but the product is suitable for a wide range of customer communications, including transactional, direct mail, and promotional materials used across many industries.

➢ **WORKFLOW & ADMIN**

The administration interface provides control over user and group security, data sources, application design parameters, and campaign design. A user/group security model with integration to Microsoft Active Directory and Novell Directory Services restricts access to folders. Folders further control access to document applications. The administration interface is also used to set regions and jurisdictions for regulated documents, such as insurance policies.

With the solution, a user-defined parallel and serial approval workflow process is defined for each folder and inherited by documents within the folder. Routing and approval is done at a group level and is integrated with e-mail for notification. The overall process supports annotations, but any rejection is routed back to the designer.

➢ **DATA HANDLING**

Data can be pulled from multiple, different sources with any number of driver and reference files. Sources include direct database access using ODBC, XML DTD or schema, record, or delimited files. Auto-mapping of XML and COBOL copybooks are supported. Line mode data files can also be mined.

THE SKINNY

Exstream's goal is to provide enterprise personalization with consistent messaging across all channels. Dialogue is well suited to meet this goal by providing strong design functionality and integrated campaign management.

Key Strengths

- Robust design client with shared object library and workflow
- Open architecture with connecters for data sources, enterprise systems, design elements, and campaign feedback
- Test suite for version comparison of AFP and DXF output

Areas of Caution

- No packaged integration with image capture or forms recognition for paper-based campaign response
- Limited functionality of message Web client for design
- Dynamic page creation requires a "flow-to" page for objects to shift to new page

Web services (like SOAP) and messaging systems, including MQ Series, JMS, or MSMQ can be used to access external systems in real time for data. A separate version of Dialogue supports double-byte character set data.

- **DESIGN INTERFACE** — The Dialogue Design Manager provides access to the object-oriented design database allowing designers to drag and drop objects and pages into documents, set attributes, and build rules with conditional logic to control individual objects, pages, complete documents, print queues, or dynamic messages. Design Manager includes features for creating 2D and 3D dynamic graphics, data-driven transactional tables with multi-level headers and footers, and overflow pages for variable page documents. An extension is provided for Quark XPress, which allows designs to be exported for use in Design Manager, which is capable of converting Quark objects into Dialogue objects. These objects can be edited and enhanced with variable data and converted back to Quark XPress objects.

- **MESSAGING** — Within Design Manager, frames can be placed on the document and set aside to display messages used in campaigns. Frames can have affinity for particular message types and can move, change size, and provide white space management. Marketing users can create messages and assign them to campaigns in Design Manager or the browser-based interface, Dialogue thin client designer, with controlled access to the rule style and placement. Previews of the messages in context are available through both interfaces.

  Dialogue Campaign Management allows organizations to create and manage marketing campaigns using targeted, personalized messages, which are dynamically placed in any outbound communications. The product allows for multi-tiered, prioritized messages to be inserted, based on customer-specific data. The quantity and timing of messages can also be controlled. The product tracks which messages are sent and who the messages have been sent to for multi-tiered campaigns.

- **OUTPUT MGMT** — Dialogue creates multiple outputs in a single pass and allows the configuration of printers, inserters, and barcodes for each output queue. In addition to hardware specifications, post-processing features, such as sorting, splitting/bundling, postage weight control, and imposition, can be configured. The product also composes to an XML-based DXF format, which can be transformed into other output formats (such as Quark XPress output). The product directly creates a full range of print formats, including AFP, Metacode, line data, PCL, IJPDS, PostScript, VPS, VIPP, and PPML, and electronic formats, including XML, HTML, RTF, PDF, PowerPoint, and TIFF. Color support extends to RGB and CMYK with named colors in each space for each printer to allow for color management.

GMC, PRINTNET T TRIPLE SUITE 4.1

➢ **ORGANIZATION**

Founded in 1986, GMC Software Ag is headquartered in Switzerland with subsidiaries for sales and support in major geographies around the world. GMC provides software solutions for designing and producing customized business communications. Using a turn-key approach, GMC provides customized software development and systems integration services within corporate enterprise and service bureau environments.

➢ **SOLUTION**

PrintNet T Triple Suite is designed for transactional and promotional applications with an emphasis on personalized document composition and production. The product is capable of handling a range of applications across the financial services, service bureau and insurance markets. The suite includes Web modules for design, proofing, and workflow.

➢ **WORKFLOW & ADMIN**

Administration and version control are applied to objects and workflows. Network rights are assigned by the administrator to the design tool. User password security is separate from the operating system, but is shared across the messaging system. Administrators can roll back versions or make changes for production.

PrintNet Output Management provides production print scheduling and job processing. Its configurable workflow tracks the document creation and production process and supports a collaborative environment, separating the data and design steps of the document creation process.

➢ **DATA HANDLING**

PrintNet T includes data handling modules for merging, filtering, and casing data. Multiple transforms can be applied to the same data. The product accepts flat file, CSV, ODBC, and XML data sources, which are combined through key indices for use with the design application.

➢ **DESIGN INTERFACE**

The design interface for PrintNet T presents a tree view of objects in the document and the variable within them. A properties window allows the designer to edit the object properties. Complex objects can be scripted to take advantage of data-driven logic.

THE SKINNY

GMC strives to be the preferred business communications solution provider by extending the capabilities of the product suite with advanced data handling, content integration, and Web interfaces. Overall, we feel that the product is poised to expand into vertical markets, and is especially well suited for organizations needing a solution that can be integrated with their existing applications.

Key Strengths

- Robust object-oriented designer with strong graphical and transactional features
- Strong platform support, including for Macintosh design client
- Production workflow manages process from data to output

Areas of Caution

- Limited security on design objects
- Limited integration to share information on campaign messages

A Quark XPress extract or imported form can be used as the base layout. The product organizes objects into layers, which can be set to print or just used for positioning. The design interface supports imposition, data-driven tables with headers and footers, and dynamic graphics with support for RGB, CMYK, HSL and LAB color spaces, as well as AFP color.

Proofing can be performed on data and layouts. The data proof steps through the associated data file record by record, displaying the values of each field used in the design. A visual proof of each record can be generated for each output type and will display error codes indicating which objects on which pages cannot be resolved.

- **MESSAGING**

Message areas are designated on the document within the design interface and can be of fixed size or fixed width. A link is established between the layout and a message set. Messages are defined as "must print," "print if space," or "duplex," which enables the composition engine to place the message on the back of a page. The priority of the messages can be assigned to any numeric value. During composition, the messages are pulled in based on variable data and usage information is written to the Messaging Server.

- **OUTPUT MGMT**

The PrintNet T composition engine maintains the layout in full color, with vector-based objects and relative positioning until it's converted to a printer-specific format. The output interface allows administrators to configure printers, set the number of copies, and designate extract files for indexing or post processing. The production engine produces AFP, Metacode, PCL, IJPDS, PostScript, VDX, VPS, HTML, or PPML to a spool or IPDS to drive a printer directly.

GROUP 1, DOC1 SERIES 5.0

➢ **ORGANIZATION**

Founded in 1982 and headquartered in Lanham, MD, Group 1 Software (NASDAQ: GSOF) provides data quality, data integration and customer communications management software and services. Group 1 provides solutions that enable customers to acquire data from existing applications, cleanse, enrich, and analyze the data, and then make it available for other application, including DOC1 for creating personalized communications across the enterprise.

➢ **SOLUTION**

DOC1 Series 5.0 is a multi-channel solution for customer communications with modules supporting the entire development-to-production process and integrating with corporate systems to share data and manage content. The product supports a range of applications in the financial services, utility, telecommunications, and insurance verticals.

➢ **WORKFLOW & ADMIN**

A single administrative interface for design and messaging users provides layered access to content by an internally maintained user and group structure. Version control is provided at the object and application levels.

The first tier of the workflow system provides routing and approval of documents or objects with promotion into production. The second tier of the workflow system manages the production process for both ad-hoc and batch production. The single system supports all the desktop and browser-based clients.

➢ **DATA HANDLING**

DOC1 Data Flow accepts flat file, relational database extracts, mainframe data files, and XML files. The product includes native connectors to several CRM and ERP systems including SAP, PeopleSoft, Oracle, and Siebel. Data can also be pushed to these systems via XML.

➢ **DESIGN INTERFACE**

The DOC1 WorkCenter presents the data dictionary, an object tree, and a view of the document. The designer can add conditional text or image objects, barcodes, static and transactional tables, and data-driven graphics. The product supports RGB and CMYK color spaces.

THE SKINNY

DOC1 Series 5.0 provides additional integration with line of business systems and extends the functionality of the Web interfaces. Overall, we feel that the product is a robust solution for customer communications management with the breath of functionality needed for an enterprise solution provided by its modules.

Key Strengths

- Modular product suite covers full business process
- Integrated archive for data and print streams
- Strong desktop design client with object-oriented repository and integrated workflow

Areas of Caution

- Limited function Web client
- Limited process management and control reporting
- Script-based post processing

A content repository maintains the metadata, design objects and resources. RealProof, a testing tool, enables users to view fully composed print streams, allowing both a visual comparison and fuzzy comparison, to enable changes prior to committing to production.

DOC1 Interactive is a browser-based Microsoft Word interface for ad-hoc document creation. The application accesses the same content repository as DOC1 WorkCenter, but uses a different composition engine.

- **MESSAGING**

DOC1 Marketer allows for browser-based management of marketing campaigns through message management, database queries, and closed-loop response tracking. Message creation uses the DOC1 WorkCenter editor with security limiting access to objects. Messages are stored outside the content repository but are subject to a routing and approval workflow.

- **OUTPUT MGMT**

During composition, DOC1 creates a package containing all the data and resources needed for multiple outputs. The product supports AFP, Metacode, line data, IJPDS, PCL, PostScript, PDF, VPS, PPML, HTML, and XML. Indexing and text files for intelligent insertion can also be created. It has script-based post-processing to handle imposition, simplex/duplex control, and print stream merging.

DOC1 Archive is a repository for documents and data including print streams and XML. It maintains customer profile information and acts as the source for presentment and payment applications with on-the-fly rendering during viewing. Data from the archive can be sent to accounting systems for round-trip payment processing or to enterprise campaign management solutions for closed-loop feedback on marketing campaigns.

ISIS, PAPYRUS 6.0.9

➢ **ORGANIZATION**

Founded in 1988 and headquartered in Vienna, Austria, ISIS provides integrated business document software solutions and services. ISIS Papyrus provides value to customers by automating high-volume, personalized customer documents to support mission-critical business processes.

➢ **SOLUTION**

ISIS Papyrus is designed to manage dynamic business documents through the entire process – from creation through production – for print or electronic distribution. Integrated front- and back-end modules provide document capture and Web browser presentation.

➢ **WORKFLOW & ADMIN**

The administration interface sets security across users, roles, privileges, and policies. In addition to its own model, the system can leverage LDAP or RACF models. The administration interface also controls document definitions, manages resources, and establishes process workflows.

The Papyrus Desktop interface is used to manage the business process workflow. The workflow system uses tasks triggered by a set event to change the state of the document or objects moving through the workflow. The routing of changed objects can be based on field values, priority, or workload.

➢ **DATA HANDLING**

A single data file or database can be linked to a document within the design interface and additional input files can be called with functions. Double-byte character sets can be accessed using code pages. Data fields are mapped to variables by selecting the data and describing the repeat and/or delimiter.

➢ **DESIGN INTERFACE**

Papyrus Designer displays a view of the actual document pages and a tree view of the document structure with data elements, objects, and the logic applied to the objects. A drop-down list of icons allows the designer to insert objects, build 2D/3D dynamic charts, create data-driven tables with headers and footers, and create barcode objects as images or fonts. The product supports RGB, CMYK, and CIE-LAB color spaces, as well as IBM-OCA and highlight colors.

THE SKINNY

ISIS' direction for Papyrus is to provide integrated solutions to business document processes. Overall, we feel that the product is well suited to handling a wide range of processes through its modular components and ability to integrate with other business applications.

Key Strengths

- Strong design client with AFP preview, full color support, and full functionality
- Advanced post processing
- Modular system with capture front end and resource design tools

Areas of Caution

- No tools for data preparation

The Papyrus Objects Library is shared by the Designer, the Desktop, and a Design Suite for creating and editing images, fonts, and static forms. Design objects and resources are all stored in the Objects Library and are accessible across applications and platforms. During the design process, documents are maintained in AFP with support for AFP or PDF previews.

- **MESSAGING**

Messages are created as a class of objects with properties related to priority and mandatory or optional presentation. The designer sets conditions for message usage, based on conditional logic. During the assembly process, messages are placed in memory and sorted, based on priority and requirements. Then they are added to the page as allowed by the page size.

Papyrus Client is a Microsoft Word-like interface for operator-driven, form-fill applications with an accurate AFP view of the document and options to print locally, archive, or submit for batch printing.

- **OUTPUT MGMT**

The Papyrus formatting engine and print server are capable of producing AFP, Metacode, IJPDS, PCL, PostScript, HTML, XML, and fax or e-mail output. The print server maintains printer-specific information including requirements for resources and image conversion. It manages the print queues and can perform load balancing and log production information for accounting and job tracking purposes.

Post-processing functions are configured primarily within Papyrus Designer. The designer can drag and drop controls for page imposition, simplex/duplex settings, and job splitting based on conditional logic, number of pages, or postal rates. The DocEXEC formatting engine will generate one or more output files including indexing files or text files for intelligent insertion. Papyrus PrintPool is used for advanced post-processing such as bundling of documents from multiple production jobs into a single output file using the indexing information from each job to match up documents.

METAVANTE, CSF DESIGNER 4.0

➢ **ORGANIZATION**

Headquartered in Milwaukee, WI, Metavante is owned by the Marshall & Ilsely Corporation (NYSE: MI). Metavante was founded in 1964 and provides solutions for customer communications, electronic banking, EBPP, financial account processing, and wealth management. CSF Designer allows personalized customer communications.

➢ **SOLUTION**

The product's feature set and output methods support transactional and direct mail applications for departmental and enterprise deployments. Conversion utilities enable existing CSF customers to migrate applications to CSF Designer. Metavante provides the software components and expertise to support presentment and payment applications.

➢ **WORKFLOW & ADMIN**

CSF Designer incorporates the design, administration, and messaging interfaces into a single application. Object-level security is assigned through user ID and profiles, and determines the actions that can be performed on an object in a folder. User authentication can be integrated with the operating system.

Approval workflow processes are available for the messaging component of CSF Designer, but no workflow process governs the document design or data handling. Because there is no overall document workflow, there is no automated way to bring together the work performed on an application by data programmers, document designers, business analysts, and marketing.

➢ **DATA HANDLING**

Metavante provides a data integration tool (Pervasive Business Integrator) that is capable of combining multiple input data files, including direct database access, and performing multiple processes to generate an XML or CSV data file for input into CSF Designer. The data hierarchy is developed in a graphical environment with the option to drag and drop elements and move elements within the data model. The data model is linked to the document design, making variable fields available for use during the design process.

THE SKINNY

Metavante's direction for CSF Designer is to support a wide range of applications and provide an easy-to-use design interface to clients. CSF Designer is well suited for both transactional and direct mail applications across all vertical industries.

Key Strengths

- Single client for administration, design, and messaging
- Excellent data manipulation tool for XML or CSV input
- User-definable objects can be saved for use in subsequent documents

Areas of Caution

- Data hierarchy must be designed manually or imported from legacy CSF
- No user-level tracking at application level

- **DESIGN INTERFACE**

CSF Designer presents a very familiar Microsoft Word-like interface to the document or message designer. Within the single window are common text, line, and image design features, as well as a sophisticated table tool and dynamic data-driven graphic tool. A PostScript or PDF preview can be generated at the desktop to check the positioning of objects with data conditions and logic. The design interface makes it easy to design complex documents, as well as simpler documents.

CSF Re@ltime is a thin-client interface for document approval and on-demand document generation. A customized user front end can be developed in either .NET or Java for user interaction. The CSF Designer batch formatting engine is used at the server for document composition. These on-demand documents composed in PostScript, PDF, AFP, or Metacode are delivered back to the user for viewing or printing.

- **MESSAGING**

Messaging capabilities are a part of CSF Designer so any design functions can be used with messaging, but application security can be used to limit changes to the design and allow messages to be added without modifying the document design. A three-step workflow process is used for approval of new messages and an audit file tracks the process. However, the workflow does not include e-mail notification.

White space management includes or excludes messages to control or limit the creation of extra pages. Messages are defined as mandatory or optional. All mandatory messages that fit are included, optional messages that do not create an extra page are included, and the system can find a valid message that fits in the remaining space.

- **OUTPUT MGMT**

Output profiles containing the specifics for composition and output method are stored as objects in the database and can be shared between applications. Banner and separator pages can be created in CSF Designer and added to an application during composition. CSF Designer supports the output formats typically used for transactional applications, including AFP, Metacode, PostScript, PDF, and XML. The system can also produce companion files, such as indices and mail run data files, for post processing.

The product can reference a specified field to combine pages and adjust barcodes as necessary for packaging multiple documents for a single customer or agent into one envelope. The product can also split a single run by record number or number of pages into multiple smaller files for ease of production. One or more fully composed files are generated as output into a spool or queue for further processing. Call outs to external applications, such as address cleansing, can be made during the composition process.

PRINTSOFT, PRES 3

ORGANIZATION

Founded in 1995, PrintSoft Americas (PSA) is a wholly-owned subsidiary of PrintSoft Development Pty Ltd of Melbourne, Australia. PrintSoft provides software and professional services for complex document composition and delivery. Product offerings include script-based and graphical interfaces for document design and unified workflow for document production.

SOLUTION

PReS is intended for use in the creation of moderate and highly complex documents by trained technical staff. It offers robust scripting capabilities for exact or relative placement of document components, complex conditional logic, and output management features including direct printing to IPDS printers. PrintSoft has a strong world-wide user base in the service bureau market and is capable of supporting a wide range of document types and delivery channels, including support for color and imaging devices.

WORKFLOW & ADMIN

PReS operates in a "trusted environment" where anyone with appropriate network access can use the product and access documents and components created within the product. Administration consists primarily of production reporting and job ticketing.

The M-PReS workflow product acts as an administrative layer over the design environment to define roles, support shared resources, and establish revision cycles. Built on .NET, the product integrates with Microsoft ADS and Kerberos security applications to import and manage users and groups.

DATA HANDLING

PReS includes a number of wizards to support data handling. For flat file and ODBC sources, a Data wizard allows the designer to select one primary and multiple secondary data sources. The COBOL wizard allows access to mainframe data sources, while the SAP wizard accepts SAP-specific files for data extraction and output management.

THE SKINNY

PrintSoft's goal for PReS is to provide multi-platform design and composition engines operating within the same workflow environment. Overall, we feel that the product is well suited for complex document design and production within a technically savvy production operation.

Key Strengths

- Design interface is capable of complex document layout and logic structures
- Robust capabilities for inbound data, including full double-byte support and encrypted data support
- Debug and composition preview to support application maintenance

Areas of Caution

- Graphical and script interfaces have different functionality
- Product upgrades can disrupt custom scripts
- Different composition engines for different platforms

- **DESIGN INTERFACE** — The PReS IDE design interface provides a color-coded display of the programming script, designating instructions, comments, and conditional logic. Instructions can be entered manually, copied from other documents, or dragged into the document from the toolbar. Wizards are provided for complex features, such as barcodes or charts, and external DLLs or utilities, such as WinZip, can be called from within the script. The final script, which includes all the resources and test data can be debugged and edited prior to compiling into machine code with embedded data and layouts, but with printer-specific resources loaded at runtime.

  PReS Designer Pro is a graphical interface with much of the same functionality as PReS IDE. It also has a wizard for designing transactional tables and dynamic messages. Horizontal page elements are defined as headers and footers, transactional data rows, or message rows. It allows message rows to be fixed to a specific size.

- **MESSAGING** — PReS does not require a separate interface for dynamic messaging. Text and graphical messages can be created in desktop applications and called as content through the design interface. Objects identified during the composition stage can be called and inserted at runtime.

- **OUTPUT MGMT** — The publishing engine merges the compiled code with printer-specific resources, as well as graphical bar codes, for output to a specific printer. The engine can drive an IPDS printer directly or spool the output to one or more separate files, based on page count, record number, or on specified content of data fields. Supported outputs include AFP, Metacode, PostScript, PDF, VPS, PPML, PCL, and the GoPReS image format for fax and TIFF conversion. The output profile assigned to the document determines which format and production method is used.

  The PReS Scheduler uses watched directories to handle incoming files and directs the output to one or more printers. Data from scheduler can be combined with print controls and internal variables to create a customized text report for management.

SEFAS INNOVATION, OPEN PRINT MIDDLEOFFICE 5.2

➢ **ORGANIZATION**

Founded in 1992 and headquartered in Paris, France, Sefas provides enterprise software solutions for high-volume business document production. Sefas assists its customers in building enterprise infrastructures for business process communications.

➢ **SOLUTION**

Sefas Open Print is an enterprise software system for the design, creation, and managed production of high-volume, transactional documents. Open Print includes product modules for the development, redesign, production, and delivery of documents. MiddleOffice is a collaborative, browser-based document design environment.

➢ **WORKFLOW & ADMIN**

The administration interface for all components is centralized in Open Print Exchange. User and group security is defined down to the object level, and the system can leverage LDAP. All document template and content objects are organized into domains with a parent/child relationship. The system supports version control and application rollback.

Open Print supports a complete production workflow process that extends across all of its modules – from design to production. A drag-and-drop interface controls the processing, splitting, and merging of jobs. It maintains complete audit trails and automates processes for production and re-print.

➢ **DATA HANDLING**

The Data Loader generates scripts that can assemble data from multiple sources to drive one or more applications, as well as generate a script to output data validation text files. Data elements from different sources can be used to create new variables, which are imported along with existing data fields into the MiddleOffice application. A debug tool allows developers to step through the data ingestion process to identify problems with the data.

➢ **DESIGN INTERFACE**

The MiddleOffice design interface provides both a tree view and display view of the document template and content. The tree view allows designers to move and set conditions on content objects. The display view allows designers to drag and drop paragraph styles and data elements on to the content.

THE SKINNY

With MiddleOffice, Sefas makes document creation more accessible throughout an organization, while supporting end-to-end production control. Overall, we feel that the product is well suited for high-volume production environments with requirements for distributed document design.

Key Strengths

- Fully functional browser-based client
- Advanced post-processing
- Modular system with support for production output management

Areas of Caution

- Client interface is cumbersome
- Limited integration with line of business applications

A table tool provides the ability to create transactional tables with configurable borders and backgrounds. A PDF preview can be generated from within MiddleOffice.

MiddleOffice shares the same object repository as the desktop design tool and other modules of the Open Print system. It maintains version control of both templates and content objects as they migrate from development into test and production environments.

- **MESSAGING**

Conditional messages are created using multi-paragraph text boxes. The conditions for each paragraph are assigned without writing multiple if-then statements. Additional rules can be created to control the appearance of messages based on widow/orphan positions, white space, and postage for additional pages. Messages can be read from external files and dropped into the required location on the page.

Open Print Projector is a browser-based client for viewing or ad-hoc document production. Users can search existing documents, based on index fields or full-text strings, or create single documents, based on templates created in MiddleOffice. Wizards prompt the user to enter the data required to complete the document and Open Print provides an interface for access to external databases for extracting information at runtime. The interface supports JDBC, CICS, or it can be customized to communicate with any required business application.

- **OUTPUT MGMT**

Sefas provides two modules for output management and production control. The Delivery module uses drag-and-drop scripts to create workflow steps incorporating conditional logic for the sorting and splitting processes. Delivery processes can call external applications for special indexing or postal sorting and reorganize print output based on indexing, page count, common addresses, or data values.

The Director module allows for shop floor management and control with closed-loop reconciliation of every document and automated reprints. Management reporting functions can track service level agreements and monitor receipt of the job and production levels.

The production engine is capable of producing AFP, Metacode, IJPDS, PCL, PostScript, PDF, VIPP, VPS, HTML, or XML output from the VPF internal format. The engine runs on MVS, Unix, and Windows platforms and is capable of operating in a grid-computing environment.

CONCLUSION

Madison Advisors concludes that the document composition tool market has reached maturity. This brings both good and bad news to the end-user market. The good news is that there is a plethora of sophisticated solutions to choose from – spanning from broad solutions to those with specialized vertical functionality – all of which are targeted toward varying levels of users and types of applications. The bad news is that with so many solutions with different target markets and ranges of functionality, the market is more confusing than ever.

End-user organizations have their work cut out for them as they determine the right solution for their requirements and applications. When approaching this market, here are a few things to keep in mind:

- **Develop your internal document composition strategy first** – before letting the vendors tell you what you need, conduct an internal assessment. What are your critical applications? What applications are planned for the near future? Are they so diverse that you might need more than one tool? Are they similar enough that a single solution could handle your needs?

- **Prioritize your requirements** – the next step is to collect and prioritize your requirements. Before looking at specific solutions and their capabilities, be sure that you have an objective understanding of your primary requirements, such as platform support and regulatory demands, versus the secondary objectives, such as enterprise content integration or electronic delivery.

- **Research, research, research** – we can't stress it enough. Do your homework on the available solutions. For example, talk to other organizations, attend trade shows, work with industry analysts, and solicit information from the vendors to be sure that you have a complete picture of all of your options.

- **Assess the vendor** – don't just assess the products. Learn about the vendor's overall direction for its product. What support options does the vendor provide? Do you believe that the vendor will be in the market for the long term or will it be acquired? What will this mean to you?

Clearly, there is a lot to consider to ensure you make the best choice for your organization. Madison Advisors helps organizations build their document composition strategies and select the best solutions and practices for their requirements and objectives. If this is an area where your organization feels it would benefit from our expertise, contact Madison Advisors to help with the success of your document composition initiative.

ABOUT MADISON ADVISORS

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

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

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

For more information about Madison Advisors, visit our Web site – www.Madison-Advisors.com.