

Enterprise Output Management Systems, 4th Edition: Moving Beyond Print Management



A Madison Advisors Report
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INTRODUCTION

Enterprise Output Management Systems (EOMS) were historically used to manage the production of printed communications; however, today, these solutions offer enhanced workflow and additional output capabilities to meet consumer expectations for digital delivery. Over the last decade, the print industry witnessed an increase in service provider mergers and acquisitions, and stricter privacy and security requirements necessary to comply with the Affordable Care Act and other regulations such as HIPAA, GLBA and FISMA. Yet, despite the prediction of the demise of print—especially since the introduction of email—print may never cease to exist entirely, making enterprise output management critical for monitoring production. Advances in technology have commoditized this industry forcing enterprise in-plants to consider outsourcing due to low print volumes, and service providers rethinking their value proposition beyond print and mail service offerings.

Madison Advisors' latest research ***Enterprise Output Management Systems, 4th Edition: Moving Beyond Print Management***, explores the technology solutions available in the market today. Our research indicates that numerous enhancements have been made in the areas of print transformation, workflow and multi-channel delivery. While the participants in this research believe that many clients are approaching transactional communications from a “digital-first” mindset, printed communications will nonetheless continue to be a critical and valuable component of multi-channel delivery.

CENTRALIZED VS. DISTRIBUTED PRINT - ENTERPRISE OUTPUT MANAGEMENT SYSTEMS MANAGE IT ALL

Enterprise Output Management Systems are used to manage centralized or distributed print production. Centralized print production includes large print and mail operations—enterprise in-plants and print service providers—that produce hundreds of thousands of documents on high volume commercial print engines. EOMS technology provides these organizations the ability to centrally manage the production and delivery of high-value transactional communications which are defined as business-to-consumer (B2C) documents generated by banks, insurance companies, utility companies and healthcare organizations.

Over the last several years mergers and acquisitions have been on the rise in the print service provider space which has created expansion for multi-site operations. Multi-site print operations need to have a single consolidated view into their production environment to be able to track files and print jobs, manage equipment utilization and monitor inventory levels. In the event of a device or weather-related outage, jobs can be re-routed to a different printer or production facility should a disaster recovery plan be invoked. Output management solutions that are device-independent allow for ease of transition to different print hardware or facilities. Most of the participants in this research are print device agnostic and support the major printer manufacturers in the industry such as Canon, HP, Konica Minolta, Ricoh, Riso, Screen and Xerox. **OpenText**

supports most print manufacturers and offers a service program so that any manufacturer can certify their devices.

Distributed print production is prominent in organizations with hundreds or thousands of workgroup and desktop printers that are distributed across buildings, internal departments and even remote offices. Each individual printer may produce a few hundred documents. EOMS technology within this environment routes individual or a batch of documents to workgroup printers located throughout the organization. By maintaining bi-directional communications with the print devices, the EOMS can route to printers that have the correct paper stock and sufficient ink or toner available. If not available, the documents can be redirected to an alternate printer.

ENTERPRISE OUTPUT MANAGEMENT SYSTEMS DEFINED

Enterprise Output Management Systems is commercial software that ingests data files from multiple systems and in multiple formats, transforms that data, and directs it to the appropriate output channel. These solutions, however, have grown beyond traditional print production management. In the past, EOMS solutions were acquired to manage multiple print devices by combining and splitting print jobs to optimize utilization of print hardware. Fax and other electronic delivery capabilities such as email or SMS text messages were a low priority compared to print management functionality. Today, in order to communicate with customers electronically, organizations are looking for solutions that can provide multi-channel delivery for high-value customer communications in order to keep up with consumer expectations and remain competitive in the industry.

Enterprise in-plants interested in outsourcing print and mail to a service provider have to determine whether or not to optimize their communications as a part of the transition to a new provider or simply do a "lift and shift" of the operation. Transition timeline, budget, availability of resources and complexity of applications all factor into the decision depending on the goals and objectives the enterprise desires by outsourcing. Enterprises that decide to lift and shift can benefit from the capabilities that output management software provides without having to modify the document composition process upstream. These solutions can provide enterprises with enhanced output capabilities and faster time to market by:

- Standardizing the location of the address block on printed communications to reduce the number of outer envelopes used and costs associated with maintaining inventory
- Householding documents to reduce postage
- Adding barcodes to increase document integrity, provide piece-level tracking and streamline print production

- Eliminating pre-printed stock by printing static content such as logos or regulatory text in-line
- Adding color or other variable content such as graphics or personalized messages
- Making documents available for additional electronic channels such as email, web portals and SMS

In addition to multi-channel delivery, the output can be directed to an archive integrated within the output management solution or to the client for long-term storage. Based on Madison Advisors' research, most of the participants offer integration with a client's archive platform and can provide the appropriate indexing and metadata necessary for search and retrieval capabilities.

Assentis Technologies has an integrated repository that is used for short-term archiving to store documents during the creation process; however, a long-term archiving solution is not part of their portfolio. **BlueCrest Output Manager** can be configured with any enterprise content management (ECM) or integrated document archive and retrieval system (IDARS). Some participants, such as **NearStar** and **Rochester Software Associates (RSA)**, have a production archive module that allows for the recovery of jobs for reprint purposes or a post-delivery review. Although **OpenText Output Server** does not have an integrated archive, it can connect to archiving solutions such as **OpenText InfoArchive**, a solution that is part of the **OpenText** suite of technology solutions.

"In our experience clients have their own archiving system and prefer to integrate with those systems."
Assentis Technologies

TABLE STAKES: BASIC FUNCTIONS OF OUTPUT MANAGEMENT

All enterprise output management systems offer the same basic production management features such as:

- Page Description Language (PDL) file ingestion – the ability to ingest a wide variety of PDL files, such as PDF, PostScript, AFP, PCL, HTML, XML, CSV, ASCII, and Metacode
- PDL transformation – converting the format of input files received to another output format, such as converting from AFP format to PDF or to PCL
- Print queue management – the ability to schedule print jobs and monitor print queues, establish print job priority and balance printer workload
- Job grouping – combining multiple jobs together based on like attributes to facilitate longer print runs and fewer machine setups, or to increase pre-sort postal densities to reduce postage expense

- Job splitting or merging – manipulation of data streams to consolidate print jobs, or split a single job across multiple print engines for better resource utilization
- Print file modification – the ability to edit print files by inserting or deleting text, adding OMR or other types of barcodes, adding print overlays, swapping out images, adding color to monochrome documents, and creating banners, headers and footers for print job files
- Reprint capability – documents that are archived can be retrieved and reprinted as well as exception files from the insertion process
- Householding – the ability to group documents from multiple jobs together for insertion into a single envelope for a given address

WORKFLOW: PRODUCTION MADE EASY

In Madison Advisors' previous report, **Enterprise Output Management Systems, 3rd Edition (December 2010)**, we identified workflow as an area of opportunity for enterprise output management. At the time most solutions offered basic job processing workflows and allowed developers to create workflows using scripting tools. Today, these solutions offer sophisticated workflow and business process management capabilities with a user-friendly graphical user interface (GUI) that enables organizations to receive print jobs and automate a wide range of actions to allow work to flow seamlessly through the production operation.

Workflow—the heart of a print production operation—automates the process from the ingestion of data files through delivery. Steps such as data stream preparation, PDL transforms, job ticket management and directing print files to specific printers can be accomplished by creating process steps as part of the workflow. A browser-based workflow system can provide a graphical interface with simple programming mechanisms that reduce development effort and the need for IT resources. **Racami Alchem-e** utilizes natural language programming and drag and drop functionality to define processes and allow users to save process steps as reusable objects that can be used in other workflows. In addition, robust API capability allows workflow processes to trigger an external process such as third-party software for address cleansing, print stream transformation or mail data file processing.

Using an enterprise output management workflow system to control production provides an organization with significant insight into the operation. Data metrics are captured and made available through a real-time or near real-time

“Alchem-e has native transforms and can call external processes to execute transforms. This is useful for companies that already have transforms, so they don't have to purchase them again.”

Racami

dashboard to capture page counts and envelope volumes, monitor quality controls and achievement of service level agreements, and identify trouble spots during the production process.

ENHANCEMENTS IN MULTI-CHANNEL DELIVERY MEET CONSUMER EXPECTATIONS

Consumer expectations for digital delivery have increased due to advancements in technology. Organizations that are unable to communicate to their customers in the customer's channel of choice run the risk of losing out to their competitors; therefore, multi-channel delivery of high-value transactional communications is critical to maintaining consumer loyalty.

The results of Madison Advisors' 2010 research revealed that although demand for multi-channel communications was increasing, few of the solution providers offered strong support for email and SMS message delivery. Today, most of the solution providers have integrated email and SMS capabilities as a part of their solution. **NearStar DataServer** and **RSA QDirect** support integration with a customer's email server. **BlueCrest Output Manager** can also integrate with a customer's email server and provide content to add to the email communication. **Timitoo Systems Formatter** can send documents as attachments and SMS for notifications, and **Quadient Inspire** delivers email, SMS and push notifications to apps, which is a unique differentiator.

Since postage expense represented a significant percentage of the overall cost of printed and mailed communications, many organizations prioritized electronic delivery as a cost-saving strategy. Unlike printed documents delivered by the USPS, documents delivered via email have a greater chance of not being opened on time, or bouncing back to the originator; therefore, enterprise output management systems that generate and deliver documents via email or integrate with a customer's email server need to offer a failover option to another channel in the event that a document is undeliverable.

Papyrus Software's email / SMTP module controls automatic printing and reprinting processes. In the event a customer does not open a document attached to an email, it will be routed automatically to a printer and sent via postal mail.

"We are working to stop the erosion of communication control as digital channels such as web and mobile are often going outside of EOMS; thus we are centralizing output across print, electronic and mobile."

Quadient

THE ROLE OF PRINT IN MULTI-CHANNEL DELIVERY

The introduction and widespread adoption of email several years ago ignited predictions regarding the ultimate demise of print; however, despite a decline in USPS first-class mail volumes over the last decade—from 82.7 billion in 2009 to 56.7 billion in 2018 (31%)—print is certainly not dead.

During that same time, postage rates increased from 44 cents (2009) to 50 cents (2018) and as of January 2019 postage is now 55 cents. The increase in postage rates had many organizations looking for ways to increase adoption of electronic delivery and reduce postage expense for transactional communications.

The advances in technology and the addition of new communication delivery channels such as mobile apps, social media and SMS have given organizations the opportunity to communicate with consumers in a variety of ways. Transactional communications, once thought of as documents that had to be sent to customers for regulatory reasons, to provide proof of activity, or to collect payment are now being optimized to create an enhanced customer experience no matter the delivery channel. Organizations are rethinking their communication strategies by having print and digital be complementary channels that work hand in hand to increase consumer engagement.

In our previous report, Madison Advisors reported that most of the output management systems evaluated leaned heavily toward print output management with few vendors offering strong support for multiple electronic delivery channels. Since then these solutions have added more functionality to their technology to support additional delivery channels such as email, SMS and even push notifications to mobile apps, whether as part of the solution or by interfacing with a customer's electronic delivery platform. Technology providers such as **Canon Solutions America** and **BlueCrest**—both with strong ties to the print hardware

"As the cost of postage continues to increase, the market will continue to emphasize electronic communications and improve their return on investment on printed communications."

Computershare

"Modern customer communication will leverage all existing communication channels—electronic and traditional—without taking a one-size-fits-all approach. A successful strategy comes down to a mix of digital and print channels that allows clients to flexibly choose the solution optimal to their personal choice and the specific communication context without limitations."

Papyrus Software

"We do see that traditional print is shrinking, but definitely not disappearing."

Timitoo Systems

industry—are committed to innovation for color inkjet and developing ways to merge print and digital capabilities for customer communications. Despite these strong ties, **BlueCrest**, as well as many of the other providers in this research, are printer agnostic and can drive output to any print solution. **Computershare** offers communication solutions that integrate print and mail with e-commerce and other e-delivery channels.

CONCLUSION

The last decade has witnessed several new developments in the marketplace for enterprise output management. Changes in technology and increased consumer expectation for digital delivery have driven this already mature market to respond by developing capabilities to support additional channels for electronic delivery. Other improvements include sophisticated workflows that can be designed easily through a graphical user interface and robust print transformation capabilities, all of which help streamline print production operations and allow service providers to increase their value proposition beyond print and mail.

The participants in this research listed in Appendix A do not represent all of the providers in this market space; however, they are representative of the technology and future direction of Enterprise Output Management Systems. Madison Advisors will continue to monitor this space as new capabilities and technology become available as well as how these solutions fit into the overall customer communications management (CCM) ecosystem.

Assentis Technologies DocFamily		
Company Overview	Headquarters: Revenue: Employees:	Rotkreuz, Switzerland Private 110
Product Focus	Focused on the financial services industries, Assentis has over 100 clients using its software solutions for batch, adhoc, and interactive document creation. As part of the DocFamily suite of software, the DocBase production server provides high-volume document production, post-processing and distribution.	
Workflow	The software suite utilizes an XML messaging format to initiate processes and trigger production. The solution enables bi-directional communications to third-party software and client front-end systems.	
Print Stream Transformations	DocFamily includes a post-processing module capable of flagging documents for inclusion, householding documents based on selected fields, adding elements such as barcodes to documents, and managing data prior to production. In addition, DocFamily supports splitting production jobs across multiple print devices for load balancing and across multiple channels for multi-channel delivery.	
Multi-channel Support	DocFamily supports multi-channel delivery. The software suite includes a short-term archive that clients may use to access documents. The solution pushes notifications and/or documents to clients through email and SMS channels.	
Platform Support	Server	Client
	Windows Red Hat Linux Solaris HP-UX AIX	Windows 7, 8, 10
Support	Assentis provides support via an in-house professional services team with extensive experience in both technology as well as CCM subject matter expertise. The software can be installed on premise or run in a private or hybrid cloud (AWS, Azure, K8s, and Docker).	

BlueCrest Output Manager		
Company Overview	Headquarters: Revenue: Employees:	Danbury, CT Private 1500
Product Focus	BlueCrest provides a robust, scalable output management solution for single and multi-site production operations. In addition, BlueCrest offers an OfficeMail solution for bundling transactional documents produced in an office environment into a production-ready print stream, with greater integrity and productivity.	
Workflow	BlueCrest Output Manager includes an automated workflow system supporting job receipt, print stream processing, and output. The solution includes pre-defined workflows and pre-built process scripts that are held in a library. Organizations can customize their own workflow and create or reuse process scripts.	
Print Stream Transformations	<p>BlueCrest Output Manager offers a complete suite of print-stream transformations. The software can transform from any print stream to another. The editing functions of Output Manager provide the ability to add or replace barcodes or other production integrity elements to a document, add color or offset shells as well as other enhancement functions.</p> <p>The software supports splitting or bundling print streams to meet the needs of production operations and provides the ability to apply business rules to household documents.</p>	
Multi-channel Support	Output Manager has the ability to create and send an email notification. The software creates indices for accessing a document archive.	
Platform Support	Server	Client
	Windows Linux Cloud Hosted (OfficeMail)	Windows Linux Cloud Hosted (OfficeMail)
Support	BlueCrest provides comprehensive consulting services for Output Manager implementation along with training and project management throughout the length of the engagement.	

Canon Solutions PRISMAproduction		
Company Overview	Headquarters: Revenue: Employees:	Melville, NY \$35.6 billion 6,000+
Product Focus	Over 80% of Canon's installed base utilize PRISMAproduction for output management and automation. The product provides broad support for transactional, direct mail, book manufacturer and commercial print operations with toner-based and inkjet printers.	
Workflow	PRISMAproduction offers an end-to-end workflow solution. The workflow module enables developers to define each process step, write and re-use macros, and create sub-workflows to call PRISMA software or to integrate third-party software into an automated workflow. In addition, PRISMAproduction is capable of using several job ticket formats, including XML, JDF/JMF, and Océ job tickets. The software interprets the job ticket or applies the workflow assigned to a hot folder in which the file appears in order to process the job.	
Print Stream Transformations	PRISMAproduction supports a wide range of transactional and graphic arts data streams. The software uses both internal and external transformations as needed and includes an editing tool which allows for the inclusion of text, images, barcodes, page overlays, electronic forms, as well as page imposition.	
Multi-channel Support	PRISMAproduction supports multi-channel delivery through data file transformation and workflow. Through integration of partner software, PRISMA can deliver documents across all customer preferred channels (direct mail, SMS, email, web portal).	
Platform Support	Server	Client
	Windows Linux ESXI VM	Windows Linux
Support	Canon Solutions America offers installation and implementation services internationally. In addition, project management, workflow modeling, and color management development training services are also offered to clients worldwide.	

Computershare		
Company Overview	Headquarters: Revenue: Employees:	Melbourne, Australia \$2289.9 million 12,000
Product Focus	Computershare is a full service provider of communication services for thousands of clients worldwide. The hosted software solution supports template management, job/document review & approval, electronic document viewing & retrieval, document archive search, and customer profile management.	
Workflow	The software uses job tickets to manage the end-to-end production process including multi-channel delivery as well as international and expedited mailing.	
Print Stream Transformations	The software uses external transformations to convert incoming print streams into PDF, which it then manages throughout the production process. The solution includes an editing tool for changing text and images, as well as embedding barcodes, page overlays, and forms. The software performs job splitting, bundling, and householding.	
Multi-channel Support	Computershare supports multi-channel delivery through data file transformation and workflow. The software delivers electronic file formats to e-mail and SMS servers as well as a digital archive. Customers access their documents through a customer-facing portal, which can be integrated into a client's portal or front-office system.	
Platform Support	Server	Client
	Windows	Windows
Support	Computershare provides consulting services and implementation support for its solution. Computershare also provides print services, an electronic document archive, and hosting for electronic delivery solutions.	

NearStar DataServer 7		
Company Overview	Headquarters: Revenue: Employees:	Lewisville, TX Private Private
Product Focus	NearStar provides medium and large print shops with a range of output management solutions and services to support traditional output management, mainframe printing, and an automated document factory.	
Workflow	The software includes a highly customizable workflow toolkit which utilizes scripts to interrogate print streams, drive the workflow process, and call software components for transformation and reporting.	
Print Stream Transformations	The software supports a wide range of print streams and uses external transformations to perform any required conversions. DataServer supports barcoding, colorization, bundling, splitting, co-mingling, and other data augmentation enhancements. A text-based editor and a PDF editor are also included.	
Multi-channel Support	All of NearStar's products support integrating into a customer's existing e-mail or SMS architecture. NearStar utilizes these mechanisms to notify of specific events as jobs move through the production lifecycle.	
Platform Support	Server	Client
	Sun Solaris Linux Windows	Windows Linux Oracle/Sun
Support	Professional services are the foundation of NearStar's activities. NearStar offers implementation and integration services to support a client's unique operational requirements for output management.	

OpenText Output Server 16.6		
Company Overview	Headquarters: Revenue: Employees:	Waterloo, Ontario \$2.82 billion (FY 2018) 13,000
Product Focus	OpenText provides a suite of output management modules across a variety of vertical markets including financial services, insurance, public sector, healthcare, utilities, manufacturing, and logistics. Output Server has been integrated with SAP and other ERP platforms to manage production and distribution of documents and reports created within business applications across a distributed environment.	
Workflow	Output Server enables organizations to automate business processes for document delivery. The process supports document transformation and output to a specific device or channel.	
Print Stream Transformations	Output Server supports PostScript, PCL, and PDF. The solution integrates with a number of transformation tools to ingest the full range of data streams. The OpenText Extstream engine, OpenText Transformation engine and third-party applications have already been integrated with Output Server. Output Server Distributor supports splitting and merging data streams for production across multiple printers or output channels. In addition, Output Server Distributor can sort multiple data streams for householding.	
Multi-channel Support	Output Server Web Delivery supports electronic delivery of documents to electronic channels. The software module handles distribution, notification, and failover with a virtual inbox.	
Platform Support	Server	Client
	Windows AIX Linux HP-UX Sun Solaris	Windows client or browser
Support	OpenText provides professional services to assist with the implementation and integration of the Output Server software modules into ERP and other back-office systems.	

Papyrus Output Management		
Company Overview	Headquarters: Revenue: Employees:	US Headquarters – Southlake, TX Private 350
Product Focus	Nearly all of Papyrus Software's CCM customers utilize the software suite's Output Management functionality. The organization serves high-value transactional markets including insurance, healthcare and financial services. Output Management is one component within a robust document-centric BPM suite.	
Workflow	Output Management leverages the business process management (BPM) capabilities built into the software suite. Papyrus Software utilizes an extensive case management model that incorporates all activity and content related to a document instance.	
Print Stream Transformations	<p>Papyrus software ingests and provides conversions for a wide range of data streams and associated resources such as fonts, forms, images or logos. Leveraging the AFP format, Papyrus Software supports all standard AFP formatting functions for delivery to IPDS printers, IJPDS printers, PCL, Xerox Metacode or Postscript, PDF and TIFF services. The software includes a document viewer and editor for adding barcodes, marketing messages, and form overlays.</p> <p>For distributed document generation, Papyrus Software's DocumentPool accumulates individual documents received from batch, online, or on-demand processes. Using document indices, the business process rules sort, merge, and bundle documents for print or electronic delivery.</p>	
Multi-channel Support	Papyrus Software's WebPortal offers electronic delivery of documents with a closed-loop workflow to print undelivered documents from the software's archive. The WebPortal supports a notification/pull model as well as a push model with reporting of timestamps and activity.	
Platform Support	Server	Client
	Windows HP-UX Linux AIX Sun Solaris IBM Mainframe	Windows (thin client or browser plug-in)
Support	Papyrus Software provides professional services to assist with implementation and application development. Papyrus Software's consultants provide training and assist with configuring the software, such as customizing the out-of-the-box workflows to suit client applications.	

Quadient Inspire R12		
Company Overview	Headquarters: Revenue: Employees:	Appenzell, Switzerland \$100 million to \$200 million 950
Product Focus	Inspire provides robust and scalable output management for enterprise and service provider clients with the goal of customer-selected omnichannel delivery of documents. The solution integrates with Quadient's broader Customer Journey Mapping to deliver multiple document types from various stages of the customer lifecycle.	
Workflow	Inspire utilizes several workflow systems to support the production, interactive, and customer journey processes. The production workflow handles data extraction, prints stream transformation, and output production, including multi-channel delivery.	
Print Stream Transformations	Inspire supports both internal and external print stream transformations. In addition, the software enables organizations to edit and add content throughout the print stream with bar codes and color content for application redesign. Inspire leverages postal solutions to natively support house-holding, bundling and splitting. The product bundles individual documents created through an interactive interface into a single production print stream.	
Multi-channel Support	Inspire Messenger offers email, SMS and push notification delivery to end-user customers. Messenger is integrated into the Designer and Formatter production software but delivered via API, with a separate cloud-based management GUI.	
Platform Support	Server	Client
	Windows Unix Linux MacOS	Windows Macintosh Linux
Support	Quadient's professional services organization provides AI-enhanced migration services that deconstructs print streams and creates templates with ordered paragraphs and highlighted variables, which reduces conversion costs. Quadient also offers implementation and architectural advice to enterprises and service providers. The software can be hosted on AWS and Azure.	

Racami Alchem-e		
Company Overview	Headquarters: Revenue: Employees:	Atlanta, GA Private 60
Product Focus	Alchem-e provides workflow automation and PDF-oriented output management for transactional, marketing, and publishing production operations. The product enables organizations to consolidate customer communications onto a centralized delivery platform.	
Workflow	Alchem-e Flow provides a browser-based interface which enables organizations to create scalable production workflows for multi-channel output. The software offers out of the box activities and users can create their own activities to perform common data processing and production tasks.	
Print Stream Transformations	Alchem-e has native transforms and can call external workflow processes to execute transforms. In addition, Alchem-e enables users to preview and edit PDF files prior to production. The transformation of jobs includes post composition re-engineering.	
Multi-channel Support	Alchem-e creates e-mails and SMS texts through its composition engine and sends these to third-party solutions for distribution. The solution manages preferences and tracks the delivery of emails through its dashboard.	
Platform Support	Server	Client
	On premises Windows or Cloud SaaS	Browser-based (IE, Edge, Firefox, Safari, Chrome)
Support	Racami offers software support, IT services and staffing for its solutions.	

Rochester Software Associates QDirect 5.4		
Company Overview	Headquarters: Revenue: Employees:	Rochester, New York Private 100
Product Focus	RSA QDirect provides output management for various segments including transactional, in-plant, publishing, and commercial print environments. RSA has a strong presence in the educational, financial services, government, and healthcare verticals.	
Workflow	QDirect processes incoming data streams sent using industry standard print and file transfer protocols to route output based on business rules defined within the workflow. The solution holds jobs in the spool and can modify or transform the data as necessary.	
Print Stream Transformations	QDirect uses RSA's transform products M.I.S. Print™ and IPDSPrint™ to transform LCDS, Metacode, DJDE, XES/UDK, AFP, and IPDS to Postscript and PDF. QDirect enables data stream modification using its job ticket editor, integrated RSA make ready and workflow automation tools, and workflow scripting points for custom processing. QDirect can also work with third-party tools such as mailer or advanced imposition software. QDirect can split or merge data streams and perform householding tasks by holding data streams in the spool to assemble documents that would be sent in the same envelope and barcoding resultant packet for an inserter.	
Multi-channel Support	QDirect interfaces with e-mail servers to deliver documents as email attachments. QDirect supports push and pull document delivery models, where the document is either an email attachment (push) or made available via download (pull).	
Platform Support	Server	Client
	Linux	Windows (client or browser plugin) Mac Linux
Support	RSA products are sold almost exclusively through printer manufacturers and associated channel partners. However, RSA offers both onsite and offsite professional services to assist with the configuration and implementation of QDirect.	

Timitoo Systems Formatter 1.3.4		
Company Overview	Headquarters:	Brunn am Gebirge, Austria and Flower Mound, TX, USA
	Revenue:	Private
	Employees:	7
Product Focus	Formatter provides HTML5-centric document production with HTML, AFP, and PDF output for both financial services enterprise clients and service providers.	
Workflow	Formatter print queues and process data can be accessed by third-party software to present job status and build a workflow.	
Print Stream Transformations	Formatter utilizes its own transformation software to convert print data streams as needed and supports HTML, AFP, and PDF. AFP Rewriter enables organizations to edit document layouts to add barcodes, edit text blocks, and colorize objects in legacy print streams. Formatter also supports splitting and merging of print streams for printer load balancing. The product leverages third-party software to supply the logic for householding.	
Multi-channel Support	Formatter enables documents to be delivered as email attachments and supports SMS for text notifications.	
Platform Support	Server	Client
	Windows Linux	Windows Linux
Support	Timitoo Systems provides consulting and technical support through its staff as well as through business partners.	

APPENDIX B – ABOUT THE AUTHORS

Rich Huff

Principal Analyst

Richard Huff joined Madison Advisors in 2002 as a principal analyst. Rich's expertise spans content management, publishing systems, digital printers, and electronic document delivery systems, including EOMS and EBPP. Rich assists clients with enterprise document strategies, product selection, and market development initiatives. Rich has authored articles for numerous industry publications, including *Document*, *Digital Publishing Solutions*, *High Volume Printing*, and *The Xplorer*.

Prior to Madison Advisors, Rich was a senior analyst with Doculabs, where he was lead analyst for end user and vendor consulting engagements. Rich also had eight years of experience at Uarco, Inc., a manufacturer of customized business forms and labels.

Rich has a B.S., Mechanical Engineering, University of Illinois at Champaign-Urbana

Gina Ferrara

Senior Analyst

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

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

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

APPENDIX C – ABOUT MADISON ADVISORS

Madison Advisors offers research and consulting services that provide objective analysis, client-specific guidance and in-depth market knowledge in Customer Communications Management (CCM). Madison Advisors' industry-neutral expertise enables enterprise organizations, service providers and technology providers to achieve their strategic objectives around Customer Communications Management. Drawing upon our extensive experience and leveraging the latest research and industry data, Madison Advisors helps organizations fully examine their Customer Communications Management (CCM) strategy—with a focus on how CCM supports a positive customer experience and engagement to continue to keep pace with consumer expectations.

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.