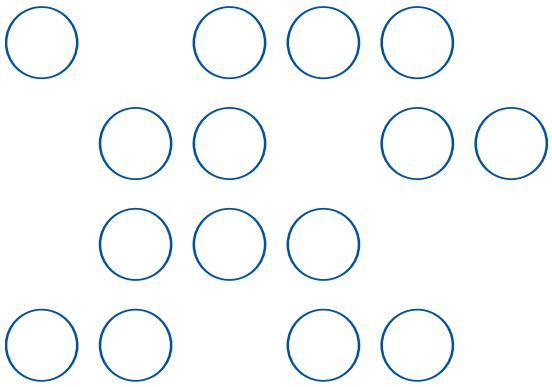
Pitney Bowes

Production Intelligence

Position Paper

A Common-Sense Approach to Building an ADF

Business Mailers Require Production Intelligence to Help Achieve Operational and Corporate Goals



Executive Overview: Introduction – Why an ADF

When it comes to accelerating efficiency, productivity and time to market in the general manufacturing sector, scores of companies have recognized the value of process automation and lean manufacturing techniques.

Intelligent, automated production processes enable manufacturers to increase consistency, eliminate defects, minimize bottlenecks, manage capacity and optimize scheduling to get products to market faster with increased quality and profitability. Just as process optimization can transform the world of manufacturing, it can be a tremendous differentiator in the world of high-volume document production. Every day, forward-thinking print and mail operations are leveraging the advantages of super-efficient factory production techniques to streamline processes.

The term Automated Document Factory (ADF) created an industry buzz in 1996 when Gartner introduced the concept of a large scale, integrated mail, messaging and document management process that integrated digital document creation, production, distribution, receipt and updating of enterprise systems. Like a lean manufacturing environment, an ADF combines process automation and computer-based production techniques to use the minimum amount of manpower, materials, money and space to produce high-value output in a minimum amount of time.

Print and mail operations migrate to ADFs for many different reasons. The adoption of manufacturing-like process automation enables them to reduce costs, minimize errors, maintain schedules, eliminate costly reprints and improve customer satisfaction. With an ADF, print and mail operations can make the most of existing assets and extend the life of legacy applications, support multi-vendor, multi-platform operations and improve overall operational control and efficiency to meet or exceed service level agreements.

In addition, with the onslaught of regulatory and privacy legislation, as well as the customer's desire to maintain a level of privacy with their data, an ADF can be leveraged to meet and exceed legislative, audit and privacy mandates.

Further, forward-thinking companies are utilizing their communications data to make more informed business decisions. Much of this data can be housed as part of the ADF because the operation has control and access to the data. Leveraging tools that track the outbound mail and inbound customer response can be extremely useful to an organization to make smarter decisions for business concerns, such as:

- >> Who to target for a particular campaign
- >> Should a reminder notice of payment go out
- >> Can customer service be more effective with access to the same mail piece as the customer who is calling about a question

Companies are beginning to house, track and leverage outbound and inbound communications to better serve other areas of the organization. They, in effect, are becoming a warehouse of information that can be used by other parts of the organization to make intelligent business decisions.

The purpose of this white paper is to explore the trends and issues that are driving the adoption of ADFs, to understand ADF components and capabilities, and why ADFs are ideal for the grueling demands of print and mail operations. This paper also describes typical technical requirements, a suggested approach, best practices for creating and building an ADF, resulting business benefits and the future outlook.

Issues and Trends

In today's competitive, just-in-time market, achieving profitability means finding more effective ways to streamline operations, increase integrity and reduce costs. Several technical and business issues are converging to make the ADF a viable solution for improving profitability:

>> Industry consolidation – In an effort to improve profitability, many companies have been involved in mergers or consolidations. The result is larger operations that must assimilate disparate locations, platforms and technologies. Success depends on how well enterprises can integrate multiple data streams, applications, platforms and systems.

>> Multi-vendor, multi-platform environments – Most organizations struggle with managing a mix of devices from multiple vendors and a myriad of legacy and modern applications. In the print environment, the challenge is managing a wide range of PDLs from a variety of hosts including mainframes, ERP, and Windows-based applications. In the finishing environment, this means dealing with legacy inserting platforms that often do not support the levels of flexibility, integrity or performance that the business now requires.

>> Regulatory compliance – Organizations must meet escalating government and regulatory compliance requirements such as HIPAA, Sarbanes-Oxley, SEC rule 17a-4, driving the need for the highest levels of document and mail-piece integrity, precise piece-level tracking and accurate cost accounting.

>> Pressure to reduce costs – Reducing costs through improved productivity and efficiency continues to be a fundamental requirement. Experts estimate that document costs account for 6 to 15 percent of revenues, and postage accounts for over 70 percent of the cost of finishing. There is a need for tighter controls, tracking and reporting to reduce costs and meet tougher service-level agreements.

>> Improving competitiveness and response times – Achieving breakthroughs in efficiency and productivity means reducing production cycle times, handling and lead time to increase competitiveness.

>> Demand for greater value in customer communications – With the growing emphasis on personalization inside and outside the envelope, organizations are recognizing that transactional mail comprises more than statements or mass-produced documents. They are strategic marketing tools that use customer-rich information to drive revenue.

>> Customer demand to receive communications via multiple channels – More and more customers are demanding their choice of communication means (mail, electronic, email, etc.). Companies can leverage this customer desire and produce documents in various presentations, while leveraging the vehicle of choice with targeted marketing.

>> Customer need for data privacy – This is also driving factories to maintain solid audit trails and controls to meet stringent privacy rules and regulations.

Introduction to the ADF

Optimizing the value of mail and the efficiency with which it is produced and delivered means applying the same type of process improvements and production techniques that have been used successfully in general manufacturing environments. In the case of document and mail-piece production, the technology enabler for achieving high-quality document production, improving asset utilization, and optimizing mail-piece integrity is the ADF.

In essence, an ADF is a document manufacturing model that applies factory production techniques to improve process efficiency and reduce costs. An ADF helps manage the end-to-end digital production of transactional documents such as statements, insurance policies, direct mail and checks. It combines computer-controlled devices and process management software with high levels of automation, data collection, in-line finishing, with minimal manual intervention. The result? The transformation of a labor-intensive, time-consuming manual construct into an efficient, technology-driven production model. While automation is the hallmark of a document factory, not all ADFs are completely automated. In fact, a partially automated operation can be considered an ADF if 45 percent of its processes are automated.

An ADF provides a single point of control for the entire document production process, from data creation, print job acquisition and input through printing, assembly and mailing, which enables a real-time view of the various stages of production and the ability to quickly intervene when necessary. By automating manual steps, the ADF workflow reduces the likelihood of errors or delays. Print operations have a high level of confidence that the right job prints on the correct paper stock. Mail operations are assured that all of the right contents are inserted in the correct envelope and mailed to all of the correct recipients – none missing and none duplicated.

An effectively implemented ADF can speed delivery, improve accuracy, reduce costs and facilitate more personalized and effective communications, especially when it is strategically implemented as part of a larger business process that adds value to customer communications and enriches customer relationships.

ADF Building Blocks and Components

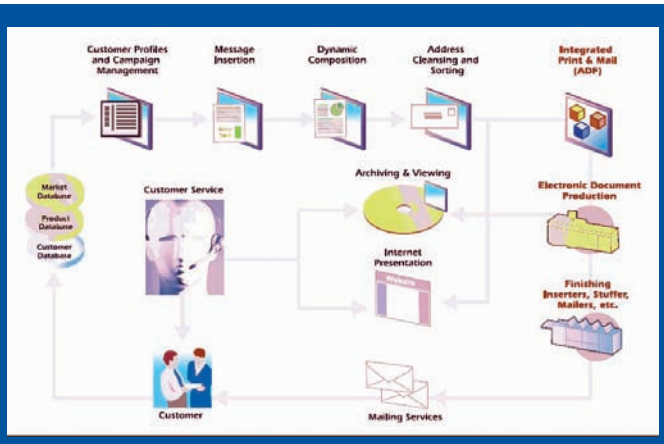
The basic components of an ADF can be broadly classified into four basic categories:

>> Input

>> Transformation

>> Delivery

>> Control and reporting



An ADF implementation streamlines workflow across the entire print-to-mail lifecycle, from data mining and CRM through document composition and address cleansing to production, finishing, mailing, archiving and Internet presentment.

ADF Component	Key Business Drivers, Features and Production Intelligence Benefits
Data Input	Addresses challenges associated with submitting, accepting and preparing all types of jobs for processing: • Connectivity – enabling multiple connectivity options including IBM hosts • Reception – automated job submission, enabling simple job ticketing and facilitating acceptance of jobs created on multiple platforms, using multiple print and data streams • Indexing – enabling fast and easy location of discrete documents (mail pieces) for viewing, reprinting, tracking and document integrity **Production Benefits:** • An open architecture environment for growth and flexibility • Reduced reliance on host support increased print and inserting control in the production center • Migration path to file-based processing for integrity and tracking • Migration path to TCP/IP and networked printing for output flexibility • Workload balancing across sites to help SLA performance and provide disaster recovery capability
Print Transformation	Addresses the challenges of complex, closed infrastructure and proprietary data streams: • Automated, real-time data stream transformation • Data stream and resolution independence • Any-to-any output/printing • Support for multiple print streams • A single point of control • Text-based vs. bitmap transformation • Document re-engineering and modification **Production Benefits:** • Print stream independence • No restrictions due to device/print stream/connectivity incompatibilities • Print and finishing vendor independence • Better utilization of capital assets • Workload balancing and DR capability regardless of print stream

ADF Component	Key Business Drivers, Features and Production Intelligence Benefits
Message Delivery	Addresses the challenges of delivering the right documents to the right recipients: • File-based processing and closed-loop reprinting • Centralized insert plan management • Dynamic, multi-channel document delivery • Reconfiguring any job for finishing on any compatible inserter • Repurposing of legacy documents for e-business • Output to archival systems • Creation of XML to support electronic statement presentment (ESP), CRM and eCRM • Electronic bill presentment and payment (EBPP) and electronic invoice presentment and payment (EIPP) **Production Benefits:** • Highest level of job and mail-piece integrity • Ensure accuracy of job setup on any inserter • Redirect any message to any channel without host support • Manage SLA performance even under contingency conditions • Ability to capitalize on e-business opportunities • Assurance that what is sent to a customer is also archived • Use of document as a database and consolidator • Reduced time to implement e-business systems
Intelligent Control and Reporting	Addresses the issues of streamlining workflow, monitoring jobs and devices, and controlling processes: • Electronic job ticketing capabilities • Postage and material accounting • Automated capture of both piece and job-level account data across all devices • Enhanced productivity accounting and management • Automatic collection and archival of piece-level production detail • Centralized printer resource management and device control • Automated, real-time job tracking and alerts • Timely, accurate, uniform data collection **Production Benefits:** • Job profiling ensures consistent processing; job forecasting drives SLA performance and schedule planning • Eliminate manual data collection (postage, page count, resources used, host form name, envelopes, inserts, etc.) to improve accuracy and productivity • Transform process statistics into business intelligence to lower costs, increase profitability and drive continuous improvement in operational efficiency • History of mail-piece production provides detailed forensics for analysis and quality control initiatives • Centralized resource management • Early warning enables action to ensure SLA performance before it's too late • Management information and reporting from a reliable database optimizes operations, scheduling and workflow trend analysis

Designing and Implementing an ADF... Big Bang or Phased Rollout? A Suggested Approach

The original ADFs were built by a handful of early adopters who stood to gain tremendous returns through process automation. However, attempts to implement complete factory production systems at one time as part of a large-scale "big bang" approach are rarely successful. Large-scale, all-at-once efforts are complex, costly and take a long time to implement. As a result, the initial business benefits and competitive advantages are often delayed or lost.

Consider general manufacturing. Most factories have been built up over a number of years and very few are completely new. They become automated by introducing new technologies such as robotics and new management techniques such as process management.

Consequently, no two production facilities or the processes within them are exactly alike. The same is true of document production centers, most of which also evolve over time, often acquiring systems as the result of mergers or acquisitions.

For these reasons and more, designing and implementing an ADF is best undertaken as a phased deployment. The suggested approach is to identify requirements and implement the initial phase of the document factory – basic ADF systems – and then fund subsequent phases with the resulting savings and efficiencies.

Rather than turning the entire print and mail operation upside down, choose the most obvious pain points, architect a roadmap and implement a pilot scaled back in terms of complexity and resources. In other words, plan strategically and implement tactically. Articulate your ultimate vision, identify your long and short-term objectives, define your technology requirements and work from there to roll out your ADF in strategic phases to deliver the highest return on your investment.

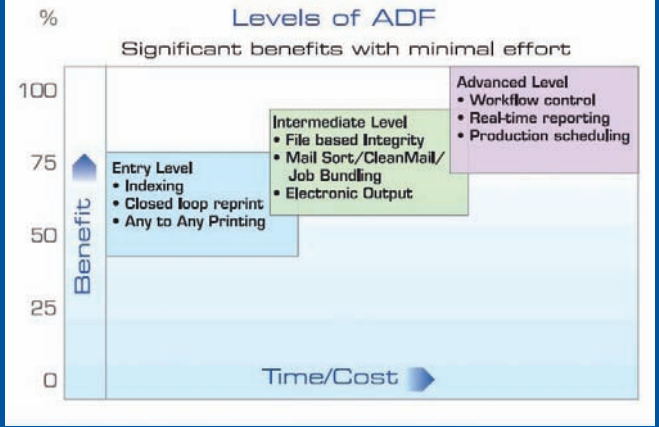
Gartner, in its 1996 document "An Introduction to the ADF," asserted that "building an ADF is a process not an event." In other words, deploying an ADF represents a series of steps that enable print and mail operations to make incremental improvements to reach an end goal. By nature, migrating to an ADF is a major undertaking. Rolling out successive phases of process automation delivers more immediate results with value that compounds over time.

Recalling the timeless wisdom of U.S. General George Patton, "a good solution applied with vigor now is better than a perfect solution applied ten minutes later."

Within the context of the modern print and mail operation, the notion of generating maximum return on an ADF investment by applying a good solution now with vigor, means:

- >> Implementing open, adaptive technology that doesn't limit you to a specific vendor
- >> Identifying and deploying "quick win" projects that provide maximum benefits with minimum investments
- >> Planning full ADF migration making incremental improvements over time

This approach makes excellent business sense for good reason – the first 60 percent of the overall document factory implementation typically generates most of the benefits. Specifically, by enabling closed-loop processing with automated reprints, you can fund subsequent improvements with the cost savings and efficiencies you gain early on.



Rolling out your ADF in strategic phases can deliver significant benefits with minimal effort.

Planning for Success: What to Look for in a Partner and a Solution

Choosing the right partner and technology to implement a document factory solution is a serious decision. One of the most critical factors to consider as you evaluate vendors and technology is modularity and scalability. Implementing an ADF is a long-term commitment, ideally rolled out in phases based on your priorities, timeframe and budget. As a result, you want an adaptive solution that scales as your needs change.

Make sure the proposed solution:

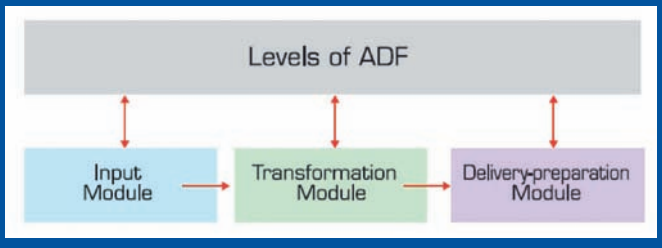
- >> Can start small and be built up over time to a total system
- >> Enables you to add printers, inserters and other devices later
- >> Accommodates large increases in volumes or rapid growth
- >> Is flexible enough to adapt to changing requirements
- >> Meets future business needs
- >> Suits any size company/requirement
- >> Enables multi-site companies to use systems on a large and small scale

Technology Requirements

Developing and implementing an ADF calls for strategic planning and a best-practices approach to assessing needs and identifying objectives. As with any manufacturing environment, the focus is on better quality, fewer defects and whittling out unnecessary costs and inefficiencies.

One of the most critical steps in deploying an ADF is establishing your technology requirements. Most print/mail operations want to migrate to an ADF. However, technology requirements vary by customer, industry and objective – whether it's to improve efficiency, unify islanded workflows, improve security or increase integrity. A financial institution might want to migrate from a mainframe channel connection to server-based printing, or deploy an accurate postage accounting solution to comply with audit requirements. An insurance company may want to improve the integrity of check processing with file-based inserting, or simply focus on being able to use multiple hosts to direct output to any available printer. A utility company may want to enable any-to-any output with a single point of control, or implement electronic presentment and payment to their customers quickly and efficiently. Any of these operations may want to build a disaster recovery center and run mixed vendor printers and inserters with full integrity.

Whatever your long-term goals, near-term objectives or industry-specific requirements, the best way to define your vision and create an action plan is to articulate your technical requirements. This enables you to create a roadmap for deploying a document factory in strategic phases.



The strategic phases involved in launching a full ADF include three modules – input, transformation, and delivery/preparation.

Identifying Your Technical Requirements: Ask Yourself a Few Questions

Connectivity to Multiple Hosts/Clients

>> What data processing platform(s) do you use to produce output?

>> What applications do you generate on those platforms?

>> What connectivity protocols are used for printing?

>> What spooling or print management is provided?

Support of Multiple Print Data Streams

>> In what format do you print business critical output?

>> What "from" and "to" formats are required?

>> What performance (ppm) is required to drive devices?

Support for Multiple Print Devices

>> What output devices do you use to print business documents?

>> Where are they located?

>> How do you get jobs to them?

>> What devices do you currently use for reprographics or production publishing?

>> Where are they located?

>> How do you submit jobs?

Spooling and Job Control at the Server

>> What are your most critical print jobs?

>> How large is each job?

>> How long are the print windows/SLA requirements?

Job Scheduling and Load Balancing

>> How do you currently schedule jobs for printing and/or mailing?

>> What procedures are required at each printer?

>> How easily can you repurpose a document for finishing on different inserters?

>> What is your current rate of utilization or "up time" for each printer and inserter?

Job Reprint from the Server

>> How often do you reprint a job or a portion of a job?

>> How often are jobs accidentally re-printed, and how do you detect them?

>> How long does it take to do reprints?

>> How do you reconcile reprints back to the original job?

Job Integrity

>> How do you reconcile your print and mail jobs?

>> What proof-of-process are you able to provide to your customers?

>> How do you handle and account for damaged pieces?

Mail-Piece Integrity

>> What procedures are in place to ensure mail-piece content integrity?

>> What proof-of-process are you able to provide to your customers?

>> How do you ensure proper insert loading and inserter setup?

Finishing Process Productivity

>> What happens if/when print quality degrades barcode readability on your inserters?

>> How are your operators measured for performance?

>> What metrics are used to monitor machine performance?

>> How do you know when an operator requires additional training?

Operational Efficiency

>> How do you warn clients that job data is past due?

>> What happens when a client requests a document be pulled from a job?

>> How do you research document history if a client reports a missing mail piece?

Secure Access to Server Information and Functions

>> How do you currently secure your print and mail environments?

>> Do you keep an audit trail log?

Resource Management

>> Where/how are print resources created and updated?

>> How do you ensure that the correct resources are at the printer for a job at print time?

>> Do you need to maintain multiple versions?

>> Do you need to protect sensitive resources?

Reporting and Accounting

>> How do you track job completion and operator productivity?

>> Do you charge customers for print services? How?

Viewing for Proofing

>> Are documents currently viewed for proofing before printing?

>> Where/how?

Interface to Document Management System

>> How do you store documents for later use? Print-ready? View-ready? Web-ready?

Disaster Recovery and Compliance

>> Do you have a business continuity plan in place?

>> Are you meeting government and industry compliance requirements?

Building an ADF – A Three-Step Roadmap

A complex or large-scale system cannot be changed overnight. As stated previously, the key to getting maximum ROI from your ADF investment is to "plan strategically and implement tactically," by implementing, adopting and accepting change in stages before adding new features or modules. Using a phased approach enables you to implement an initial phase of improvements and fund further enhancements with the return on investment generated by immediate improvements in productivity, efficiency and cost savings.

Step 1, Entry Level Phase:
Print Servers and a "Starter" Document Factory

When companies first began to recognize the potential advantages of ADFs, industry-watchers predicted that print/mail operations would roll out ADFs starting with hardware improvements. However, the inverse proved to be true. The majority actually began and continue to launch ADF initiatives by taking control of print stream data and eliminating host-based reprinting.

The first step in rolling out a document factory is to implement print servers and a starter-level document factory. In a typical print and mail operation, the majority of applications are processed on mainframes or other host systems remote from the printing process. Taking control of the print streams or data in these applications lays a solid foundation for building a full document factory over the long term.

The print server provides the foundation for the document factory, enabling minor or major components and services to be added for increasing functionality. With the implementation of print servers, print/mail operations can:

>> Automate job submission and input with simple job ticketing

>> Enable multi-host connectivity and compatibility for any-to-any printing

>> Support closed-loop reprinting

- Merge multiple small jobs into larger jobs for printing on production-class printers, reduced processing costs and postal discounts
- Provide a store-and-forward mechanism for composition tools
- Capitalize on one-to-one communication opportunities through basic print stream re-engineering and transformation
- Modify workflow and print-ready documents without changing business applications
- Simplify maintenance and extend the life of legacy applications
- Implement entry-level control and reporting capabilities
- Centralize resource management

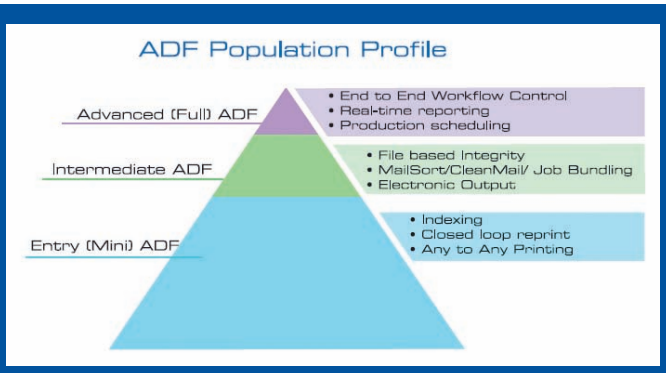
Step 2, Intermediate Phase:
Automating Delivery, Sorting, Workflow and Finishing

Once the initial phase of automation is in place, and the print/mail operation is generating the benefits of multi-host access, streamlined transformation of legacy documents, any-to-any printing, improved process control and streamlined reprinting, the print shop can leverage the cost savings to fund the next phase.

The intermediate phase of the document factory implementation builds on the improvements made in the initial phase to deploy further process automation, achieve higher levels of device and document integrity, and enable intelligent document sorting, workflow, finishing and delivery capabilities.

At this stage, print and mail operations can implement:

- Enhanced finishing processes, including file-audit and full file-based processing
- Automated document archive
- Automated closed-loop reprint capabilities to ensure job integrity
- Ability to add, modify and delete bar codes and OMR marks for flexible inserter control
- Multi-channel document delivery including email push, fax, electronic bill presentment and payment, SMS and CD output
- Sophisticated automation: postal address presort and address correction
- Increased workflow automation to intelligently split jobs and balance workloads across printers and inserters while maintaining job integrity
- Automated productivity data collection to drive performance and quality improvement initiatives
- Accelerate time to market and make the most of hardware assets
- Use of business intelligence and business rules to trigger conditional actions



Apply a phased approach in your ADF for improvements in productivity, efficiency and cost savings.

Building on the initial phase of process automation with a second stage of improvements yields important efficiency and productivity benefits:

- >> Continuity of production
- >> Rapid problem resolution
- >> Reduced production costs
- >> Reduced development cycle times, fewer delays
- >> Improved customer service
- >> Higher levels of output integrity
- >> Reduced costs
- >> Job tracking across the document lifecycle

Step 3, Advanced Phase: Control, Reporting and Scheduling

The ultimate goal in deploying an ADF is implementation of an advanced phase ADF that enables sophisticated workflow control, real-time reporting and production scheduling, enabling easy access to customer information and business intelligence to enable zero-defect production and better decision-making. The advanced stage ADF provides complete multi-vendor printer and print stream support with automatic processing of Xerox® LCDS/Metacode, IBM® AFPDS, IJPDS, HP PCL, Adobe® PostScript, PDF and more. It also enables centralized printer/resource management, localized reprinting, job accounting, client server scalability and capabilities such as:

- >> Precise job tracking and job event alerts based on pre-determined triggers
- >> Improved production scheduling
- >> Generation of reports to support and inform invoices, disputes and negotiations
- >> Intelligent workflow management and just-in-time control
- >> Identifying shifts in job patterns, variables and preferences to maximize capacity
- >> CRM loop-back of information
- >> Integration with finishing and document tracking systems essential to an ADF
- >> Automated delivery of legacy/new documents across channels such as surface mail, email, PDF, fax, DHTML and web without modifying underlying applications
- >> Flexibility to feed e-business applications including ESP, eCRM, EBPP, and EIPP
- >> Secure archival in a digital repository for later search and retrieval or reprint
- >> Indexing/splitting to support color, 1:1 marketing messages and finishing integrity marks

The benefits of an advanced stage or full ADF implementation:

- >> Customer satisfaction by delivering documents in the preferred format/channel
- >> Improved customer response time and cash flow
- >> Reduced paper, postage and handling costs
- >> Streamlined/automated business processes
- >> Accelerated time to revenue in ERP, CRM and other solutions
- >> Streamlined compliance with government and industry archival regulations
- >> Flexibility to integrate and adapt workflows easily as customer requirements change
- >> Transition to an “any-to-any” system without excessive translation effort or cost
- >> Simplified production management
- >> Highest degree of integrity for every mail-piece that leaves the production center
- >> Increased productivity/continuity of production (in event of inserter downtime)
- >> Reductions in capital costs by maximizing equipment utilization
- >> Reduced cycle times and staffing costs
- >> Quantifiable information for operations managers on how vendors are meeting SLAs
- >> Access to production numbers, utilization and efficiencies for real-time decisions

Components of an ADF

As a rough guide, these components/capabilities are implemented in each step of the deployment.

Basic

Job Input
- Centralized spool for job reception
- Connectivity to multiple hosts
- Support for multiple print streams
- Central spool for job control
- Automated job selection and assignment of job tickets
- Full resource management

Transformation
- Any-to-any PDL conversions
- Ability to generate print and electronic output from a single source
- Optimized output to increase printer performance

Workflow
- Identification of document or mail-piece boundaries
- Document level indexing – based on specific data on the document, e.g., account number, customer name, etc.
- Basic document re-engineering capabilities (add, delete, move text and images)
- N-up and N-to-1 printing to support downstream finishing requirements
- Banner page creation/customization

Control and Reporting
- Printer control
- Indexed reprinting
- WYSIWYG document viewer
- Basic job accounting
- Basic job scheduling
- Multi-user, multi-level security user interface
- Basic business continuity provision in place
- Conformance to the minimum government and industry compliance requirements, e.g., Sarbanes–Oxley, HIPAA, Basel II

Intermediate

Delivery/Integrity
- File-based integrity with finishers using integrity marks and cameras
- Automatic reprinting of damaged mail pieces
- Integration with printer integrity systems
- Delivery via PDF and email
- Alternate delivery channels (fax, EBPP, SMS, CD)

Workflow
- Automated workload balancing (job merging, splitting and bundling)
- Conditional actions/document delivery based on available data on mail piece or driven from a database
- Advanced workflow re-engineering such as document consolidation into single envelope, simultaneous print and PDF output, replace of pre-printed stationery and color documents
- Ability to generate XML to support EBPP applications
- Ability to generate custom audit or accounting files to integrate with factory control systems
- Post-composition address sortation (presort), address correction and addition of postal marks and barcodes
- Integration with archive systems
- Finishing
- Ability to create, add and modify barcodes/OMRs/OCRs marks rather than change the setup on the finisher
- Switching of barcode addition based on target inserter line

Advanced

Control, Reporting and Scheduling
- Central database incorporating operational, job, SLA and real-time performance data
- Complete closed loop mail-piece level tracking and auditing
- Graphical representation of real-time production metrics, equipment statuses and SLA targets
- Event-triggered alerts to operations management
- Enhanced performance reporting with drill downloads by client, job, device, operator, shift, etc.
- Reports on conformance to SLA targets
- Adherence to government and industry compliance requirements, e.g., Sarbanes -Oxley, HIPAA, Basel II

Workflow
- Closed-loop tracking of returned mail to reduce postage costs and determine effectiveness of marketing campaigns
- Conditional addition and personalization of electronic inserts for one-to-one marketing initiatives
- End-to-end workflow steps (design, management and control – from data source to post bag)

Scheduling
- Real-time job scheduling based on actual operational conditions
- Simulation of "what if" scenarios
- Early warnings for potential operational bottlenecks and non-compliance to SLA targets

The Pitney Bowes Automated Document Factory Solution

An effective ADF implementation depends on open, flexible, vendor-independent output management. This is where Group 1 Software, Emtex, and Pitney Bowes Document Factory Solutions provide value with an ADF solution that enables "any-to-any" printing, connectivity to any host, site-to-site job transfers, document re-engineering, centralized accounting and end-to-end job and document level tracking and reprinting.

Emtex is the leading provider of output management solutions for mission critical, high volume document production operations seeking to increase profitability by improving operational efficiency and the communications effectiveness of customer facing documents. With offices in the UK, Germany, USA and Canada, Emtex operates across a number of vertical markets and serves customers in more than 20 countries with some 800 sites worldwide.

The Emtex ADF solution combines centralized spooling, resource management, "any-to-any" printing and real-time document re-engineering with a vendor-independent, open architecture that easily integrates with other vendor's ADF products to create a cost-effective, flexible, scalable, end-to-end document factory. Leveraging extensive experience in designing, developing, and deploying ADF solutions and integration with other Emtex solutions and ADF partner products, Emtex can help companies accelerate progress in four key areas – input, transformation, delivery, and control and reporting. Emtex ADF solutions overcome the output management deficiencies in most document composition, ERP and host-based spooling systems, enabling organizations to reduce infrastructure management costs, mitigate risks and maximize asset and labor utilization.

Automated Document Reprinting

When documents are damaged during printing or finishing, the affected page or range of pages must be reprinted to ensure the integrity of the job. Many print operations use operational procedures and camera-based systems to "validate" integrity. However, this takes valuable time and resources from an already stretched work environment. Print operators have to identify the specific document by data on the damaged page, collect the reprint requests, and instruct the host application group to either resend the missing pages or reprint the entire job. The result is delay, paper waste and decreased productivity. Through close integration with printer and finishing equipment, the Emtex Automatic Reprint Manager System determines which pages have been damaged and automatically regenerates them, printing pages through the existing print line or to a local PostScript or PCL printer.

Automated Document Tracking

One of the primary objectives of an ADF is to make sure the right document is printed, with the correct information, placed in the correct envelope and delivered to the correct recipient. To ensure that jobs are successfully printed, the Emtex automated document tracking capability replaces manual auditing processes with an automated process that records data pertinent to the operation. The data, which includes lists of customer account numbers, outstanding balances, and address postal codes, can be fed into an auditing or financial system for reconciliation purposes.

Automated Inserter Control

The workhorse of the mailing industry is the automatic mail inserter. The manner in which inserters perform is often selectively controlled by codes printed on documents that link them to a specific finishing workflow. Changes to the workflow often require changes to the print application itself. With Emtex automated inserter control technology print operators can easily:

- Add, delete or move OMR/barcodes without changing the original host print application
- Move OMR and barcodes due to a change in finishing equipment
- Add integrity information not present in the original application
- Sort documents by page count and into multiple output buckets
- Separate oversize/overweight pieces to minimize manual efforts/machine downtime

Business Benefits of an ADF

When implemented effectively, an ADF can provide a wide range of capabilities and benefits:

- Streamlined document management and reporting with a single point of control
- Improved production efficiency
- Reduced production, programming and staff costs
- Maximum equipment utilization and efficiency
- Improved management capacity planning
- Closed-loop integrity for guaranteed document delivery
- Document integrity during insertion
- Reduced exposure to government regulations through automated processes
- Enhanced document accountability
- Improved customer relationship management
- Effective, dynamic customization of documents
- Investment protection with simplified updates to legacy print applications
- Easy, online job management and control to reduce the burden on supervisors
- Real-time visibility of job status to drive service level compliance

Cases In Point

As mentioned throughout this document, the benefits of deploying an ADF in phases can yield immediate returns. These case studies illustrate the advantages of integrating Pitney Bowes production intelligence into the workflow to support a partial or full ADF implementation.

Aetna: Mail Piece Processing Integrity and Real-Time Production Tracking and Control

To be successful today, it is essential for businesses to have a productive and meaningful dialogue with their customers. But in many organizations the responsibility for customer communications is found across many different departments, managers and executives. So a key challenge for business managers is to ensure an effective, consistent and seamless communications process throughout an enterprise, while still delivering a return on investment to the company.

To meet these challenges, Aetna, one of the nation's largest health care insurers, has partnered with Pitney Bowes, the industry's most experienced and knowledgeable provider of mailing and document management solutions.

Challenge

In 2002, Aetna had increased its market share through acquisitions and geographic expansions. While integrating the operations of its U.S. Healthcare and Prudential acquisitions, it was also managing multiple data processing and print/mail functions. The first problem was that their laser printers were "channel attached" to its business applications. Fixing this would mean revising the firm's legacy business applications, which would be a costly and time-consuming process. The second problem was how Aetna could deliver greater shareholder value. The third problem was how to meet new regulatory requirements.

Solution

Pairing up with Pitney Bowes, Aetna implemented the DFWorks® suite of management tools to elicit real-time shop floor performance data and make an unprecedented view and control of production possible, even from remote locations. Aetna implemented Direct Connect, which enhanced mail-piece processing integrity thereby helping them meet new regulatory requirements. The Aetna solution also included online presentment of their explanation of benefit statements (EOBs).

Over five years, cost savings exceeded $15 million from the following five sources: print and postage cost savings, infrastructure savings, improved format and content of mailings, expanded electronic delivery channels and improved controls and efficiencies. By streamlining document production and incorporating digital channels, Aetna also improved the customer communication experience.

Large Insurance Company in Northeast: Data Collection, Production Management, Automation and Reporting

An in-house organization of a very large insurance company in the Northeast is responsible for printing over 500 million images and mailing over 60 million packages a year for both their Property & Casualty and Life Insurance groups. Hardware includes printers, intelligent and non-intelligent inserters, metering equipment and mail sorters. They have approximately 125 staff members that work a regular 5/24 schedule, which goes to 7/24 for quarter-end processing.

In addition, this organization requires a variety of outputs. On the print side, simplex, duplex, 1-up and 2-up Metacode outputs, MICR print and Postscript outputs run in over 1,000 jobs daily. On the inserting side, there are jobs with no barcode, jobs with OMR or 3 of 9 barcode, jobs with stitching and a specialized binding assembly, preprinted covers, and a wide variety of selective inserts. Mail and packages are configured for virtually all the USPS® and FedEx® delivery options.

Challenge

This company needed to get a better handle on their print production and mailing operation, as well as find a provider that could help them meet their critical business needs. The first problem they wanted to address was to coordinate production processes. The second challenge was to track the status of individual jobs. The third was to provide timely, accurate reporting including postage accounting for both themselves and their internal clients. Their fourth challenge was to understand the status of a project at any given time. There was no early warning system to indicate if a project was in jeopardy of missing an SLA.

Solution

The insurance company joined forces with Pitney Bowes and implemented their DFWorks® system, a scalable information engine with a modular, integrated set of data collection, production management, automation and reporting components.

This company has already experienced many benefits: research time for processed jobs has decreased by 50 percent and production-floor managing time has increased. As a result of the DFWorks® solution, the company has also discovered nearly 10 processing enhancements that will help improve efficiency and productivity. The company projects that the DFWorks® system can eliminate four to five missed SLA jobs a week and improve SLA timelines by 5 to 10 percent.

Allianz Cornhill: Intelligent Job Tracking/Centralized Accounting

Allianz Cornhill is part of the Allianz group, the second largest insurance company in the world, with more than 60 million clients in more than 70 countries. Allianz Cornhill Insurance, PLC, the company's UK organization, comprises several trading divisions.

Challenge

With pressure to reduce costs and increase profits while maintaining a high level of service, Allianz Cornhill needed to streamline and simplify its output environment. Ninety-five percent of the company's UK printing and mailing pass through the Allianz Cornhill print center, which competes for internal business from different trading divisions. The print center needed to standardize, simplify and automate operations and better account for document production.

Solution

Allianz Cornhill expanded on an existing Emtex VIP output management implementation, adding VIPCount to collect and consolidate print accounting information from a select range of printers. The information can be reported on and analyzed to compare printer and operator performance for capacity planning and cost recovery. The print center uses Emtex VDE print stream re-engineering software to consolidate print streams and use Cleanmail functionality. By centrally managing its operation, Allianz Cornhill has optimized its production capabilities, better utilizes staff and print assets, increased capacity and reduced costs by 25 percent.

A Leading Customer Communications Company: Any-to-Any Printing, Indexed Reprinting and Resource Management

A leading customer communications company provides integrated print and electronic billing, customer care and customer communications solutions to many of the country's largest financial services, healthcare, insurance, communications and utility providers. The communications leader, with 3000 employees and annual revenues of more than $400 million produces more than 1.9 billion transactional print and electronic statements and documents annually and is the largest third-party First Class mailer in the United States.

Challenge

The communications provider needed to streamline and consolidate operations into three main production sites located in Kansas City, Sacramento and Hartford. The Hartford location prints 350,000 impressions every day, seven days a week for a single customer. With such large-scale print production, the company needed to transition from costly channel extensions to more current technologies. In addition, legacy application software meant printers received Xerox data streams inefficiently and compromised printer productivity.

Solution

Emtex VIP was implemented to streamline and consolidate operations at the Hartford site and the results were immediate. The company was able to open up capacity and bring production printers up to full speed, and begin the move from channel extension to TCP/IP. VIP also provides centralized printer management and transformation capabilities for multiple Xerox® devices, enabling true any-to-any printing. The VIP indexed reprint module enables easy reprinting of documents in a print job to any printer without re-submitting the job from the host, while online reprint capabilities enable the leading customer communications provider to turn around reprints for customers more rapidly. The company also has streamlined resource management, including resource downloading, in-line resources and date and time-stamping to ensure that the right resource is available for the right application at the right printer.

Summary...the Future

As the emphasis on zero-defect quality, super-efficient document production and seamless process efficiency grows in product and document production, future innovations in ADF technology are already emerging from the development pipeline. These innovations will likely include:

1. Closed-loop processing of returned/undelivered mail to further reduce postage costs
2. Closed-loop processes with marketing responses to measure campaign effectiveness
3. Greater use of 1:1 marketing integrated with transactional documents before print to minimize/eliminate hardcopy inserts, thereby reducing inserter costs, insert warehousing and obsolescence
4. Wide-scale deployment of RFID technology on documents/inserts to enable complete, end-to-end and closed-loop document tracking and marketing effectiveness

In summary, the integration of ADF technologies and closed-loop processes along with RFID technology promises to infuse the entire document operation, across multiple workflows, environments, and locations with production intelligence that delivers infinitely higher levels of efficiency, cost savings, business value and profitability.

Pitney Bowes

Pitney Bowes

Engineering the flow of communication™

Pitney Bowes
37 Executive Drive
Danbury, CT 06810-4148
877-536-2736

For more information about our products and services, please log onto our web site: *www.pb.com*