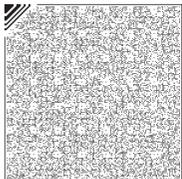




WHITE PAPER

# Automated Document Factories in a Multi-Channel Environment



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The concept of an automated document factory (ADF) has been around for a long time. The Gartner Group originally coined the phrase in the late 90's. Since then, an evolving customer communications industry and technological advancements have been expanding what it means to have an automated document factory.

The general idea and goal of an ADF is to apply automation strategies and controls typically found in a manufacturing environment to the processes necessary to create and distribute documents.

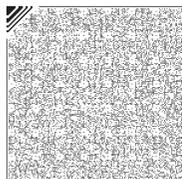
At the time ADF was first conceived most people still thought of the documents processed in the factory as something physical. The critical components were paper and marks applied with ink or toner. Postal services or couriers delivered the documents to end users. Today, ADFs can produce and track text messages (SMS), email, electronic presentation over the internet, video, audio and more – besides the traditional paper-based items.

Multiple document formats have increased the important role an ADF plays, not only in document operations but across the enterprise. A wider variety of formats and devices have added layers of complexity. Besides all the details compiled by single-channel ADF systems of the past, the databases used by modern ADFs now must answer questions such as:

- Was the document transformed from another print format?
- In what format was the document created?
- Was the document combined with others and delivered together?
- Which documents were combined?
- How was the document delivered?
- When did the document arrive?
- Can we confirm delivery of the document?
- When was the document viewed by the customer?

Organizations attempting to migrate from an output environment focused on printed and mailed documents to the multi-channel world need tighter controls, better tracking, and comprehensive record-keeping to satisfy customer demands. Multi-channel distribution presents many challenges, and the opportunities to make mistakes have increased.

To ensure the best customer experience, organizations must allow recipients to decide which of their communications they want delivered in each distribution channel. No longer a matter of maintaining an account-level indicator to suppress print, document centers must now maintain and honor more comprehensive customer communication preferences. Channel preference may vary from one document type to another for a single customer. A modern ADF must be able to access customer preference details and use them to distribute messages accordingly.



## What an ADF Does

An ADF gathers and stores information about production on a job level, an item level, an equipment level, and sometimes an enterprise level. This information can generate management reports, statistics, and alerts.

Data that populates the ADF database can come from a myriad of sources including:

- Raw data files
- Statistics compiled by processing software
- Cameras and sensors mounted on equipment
- Networked computer terminals
- Hand-held scanners
- Postal services that offer mail acceptance and delivery confirmation
- Online bill presentment and payment systems

Also included in ADFs are business rules and workflow routing specifications.

Unlike the original Automated Document Factories, today's systems can collect machine-level status and error conditions from equipment regardless of the manufacturer. In fact, independent vendors developed many of the ADFs now in use.

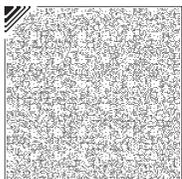
Data compiled from production equipment such as printers, presses, and mail inserters can aid with resource planning and load balancing. The system can alert management when service level agreements (SLA's) are at risk, such as when throughput drops to an unacceptable level. With job-level reports, managers can also identify troublesome jobs or underperforming equipment. Employee performance metrics provided by the ADF can help management spot training deficiencies or reward high-performing individuals.

Item-level tasks such as tracking, controlling and decision-making on individual documents are more complex ADF functions. The vast amounts of data to collect, analyze and report require ADF solutions to be highly efficient and scalable.

Item-level functionality may include processing information on individual customer documents covering raw data input, document composition, file format transformations, and print-file re-engineering. The ADF database also records item-level output details as documents are routed to printers or digital content channels, physical document insertion or other finishing steps. As items enter the delivery portion of the workflow, the ADF logs tracking data acquired from the delivery channel, customer preferences, response management, and undelivered/unopened message indicators.

Item-level tracking allows document operations to answer questions from customers, user departments, or customer service about the status of a particular document. Availability of accurate information improves the customer experience. It also eliminates the need for managers to tour the production facility, trying to find a particular unit of work.

Organizations seeking ADF solutions may find some of the choices excel in certain areas, but lack support in others. The customer communications environment is transforming, so any solutions organizations choose and implement today must be able to react to the demands of the future.



## Shortfalls of Some ADF Solutions

### *Incomplete coverage of workflow*

Some ADF packages concentrate on only the mail inserting operation. Others may support additional portions of the document production workflow, but only for physical documents. Or they may not include functionality to handle delivery channel tracking or responses. Shortcomings such as these could limit a document operation's ability to deliver the functionality their internal or external customers demand.

### *Counting Pieces without Relevance*

All ADF systems furnish counts of documents processed at various parts of the workflow, such as the number of envelopes exiting the inserting machines. But counting without relevance adds little value to the operation.

Relevance becomes critically important when organizations take advantage of cost-saving strategies such as householding. Householding decreases the number of outbound mail pieces, trims the number of pages produced or both. Without intelligence that allows the ADF to understand what has occurred in the householding or document re-engineering steps, downstream document tracking could be inaccurate. An ADF that assumes a one-to-one relationship between the number of accounts processed in the print step and the number of physical mail pieces on the inserter can (incorrectly) report an out-of-balance condition due to the upstream operations.

Document re-engineering or transpromo processes can add pages to a document set. Business users and customer service will want to know exactly how many pages were produced in the final version of each mail piece or electronic document, and which pages were included.

### *Proprietary Solutions*

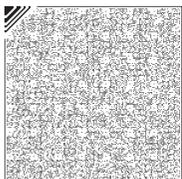
Almost all document factories use equipment from various manufacturers. A solution that provides detailed information about work processed on only some of the equipment results in an incomplete picture of the entire operation. This limits the flexibility required to handle needs such as load balancing or SLA management.

### *Significant Professional Services Component*

Every ADF implementation will likely include professional services. No two automated document factories are exactly the same. However, ADF packages that require a great deal of customization and integration work by the solution provider result in long installation engagements and skyrocketing costs.

## Customer Communications Trends to Watch

Customer communications environments are shifting. New technology for consumers and for document-creating entities, postal reorganization, an emphasis on customer experience, and more are affecting the way organizations connect with their customers. Automated document factories must continually evolve and improve to address new requirements as they develop.





### *Multi-Channel Communication Strategies*

Customer communications can be more complex than they appear. To satisfy customer needs, organizations must manage email, text messaging, social networks, and hosted web sites. Output media can be on paper, computers, smart phones, wearables or tablets. The future will likely bring even more channels, devices, and formats a business must support.

Consumers have made it clear they want to control more aspects of their relationships with businesses. Simultaneously, businesses are interested in fully exploiting the benefits and capabilities of various forms of customer communications. They want to suppress print, add targeted and personalized promotional content to transactional documents, include hyperlinks and embed content like audio and video.

The tracking and control features of an ADF must operate effectively in this complex environment.

Not only must document-producers create their messages in formats compatible with all channels and devices, they must capture and maintain user preferences along with individual identification information for various networks.

### *Cost Containment*

Businesses must constantly control the costs of customer communications. They often accomplish this objective with increased automation, higher productivity, and print suppression. Companies are pushing hard to develop methods to deliver information to customers without printing the documents, but they must process the remaining print volumes as efficiently as possible. Organizations may lower costs by shutting down an in-plant document operation and moving the work to an outsource provider. They demand process visibility offered by the outsource service provider's ADF.

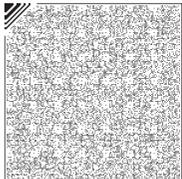
### *Lower Print Volumes*

Besides migrating printed transactional documents to electronic alternatives, print volume is also being reduced in other areas, such as marketing. Companies are using improved access to data sources to more finely tune their marketing distribution lists. Sophisticated document composition tools and affordable full-color printing allows organizations to personalize content very effectively. The resulting communications are highly relevant to each individual customer and produce better results.

Lower volumes and increased personalization have driven the value of each marketing mail piece higher. Often, printed marketing materials are linked to complementary messaging delivered digitally. Stricter control over quality and accuracy in the document print and mail operation is essential to maximize return on investment. Automated document factories are the cornerstones of this increased reliance on maintaining the quality and integrity of digital and physical messages.

### *Environmental Concerns*

Environmental stewardship continues to be a trend worth watching. Companies do not want customers to perceive them as environmentally insensitive. Customers consider irrelevant, excessive or indecipherable documents as wasteful. Documents which have no value to the recipient or multiple envelopes sent to the same address on the same day are insulting to environmentally conscious individuals.





Companies are addressing environmental issues by converting generic portions of documents, such as terms and conditions, to text relevant to the recipient. They use document re-engineering software such as Crawford Technologies' Operations Express to household documents, modify inserting machine control marks, reduce page counts and re-number pages. ADF software is necessary to track all this activity and record the contents of each outbound envelope.

### *Postal Changes*

Changes in the US Postal Service affect the customer communication strategies of individual organizations mailing to addresses in the United States. A reduction in delivery days, closing of processing plants and changing service levels could force companies to change their production schedules to compensate for longer delivery times. Similar developments are occurring in postal systems worldwide. The timing of both outgoing bills and incoming payments may need adjustment. Companies with ADF solutions in place can project the impact of postal and delivery changes on production schedules, staffing and equipment utilization.

ADF systems help companies achieve lower postage costs by tracking documents that were formerly parts of small separate jobs as they combine the work into larger batches. Document operations can merge multiple jobs to increase the number of pieces destined for a particular zip code/postcode on a particular day, known as density. Higher density means lower postage rates.

The US Postal Service has eliminated weight classifications for US First Class Presort Letters. Mailers may now send heavier mail with no increase in postage. This change has spurred a renewed interest in householding and document reformatting to improve readability. Both these strategies add pages to a mail piece, and require document modifications that often occur after the document composition step. The automated document factory must track any changes to document characteristics.

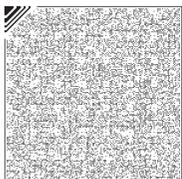
### *Customer Experience*

A focus on Customer Experience (CX) is a priority project for many organizations and is likely to continue. Nearly every large corporation has CX projects planned or underway. Customer-facing documents play a part by communicating more clearly or providing status on transactions in process. Instead of modifying legacy document composition systems, many companies are changing documents on the fly with document re-engineering software like Crawford Technologies' Operations Express. The ADF must track these document modifications.

### *Inkjet Migration*

In-plant document centers and print service providers are transitioning from toner to inkjet document production. Much more complicated than swapping the hardware, inkjet migration affects processes and workflows throughout the production operation. Document operations may add extra steps to optimize print files for efficient inkjet processing and new print file transformations may be necessary.

Companies switching from cut sheet to continuous paper encounter even more hurdles, such as ensuring accurate duplexing and page imposition. Print operations running high-volume inkjet presses typically combine print jobs to avoid throughput degradation and waste that occurs when they stop and start the presses. The ADF must track documents and mailpieces as they travel through this complex and integrated environment.



## ADF Enablers from Crawford Technologies

### *Flexible Workflows with PRO Production Manager*

This open, configurable solution enables end-to-end process automation management. It bridges data sources, composition systems, printers, inserters and the mail stream, resulting in a seamless production workflow.

### *Real-time Dashboard with PRO Conductor*

PRO Conductor, available as an integrated module for other CrawfordTech solutions, provides an easy-to-use web-based dashboard that gives real-time information of job status, with customizable reports and metrics to provide insights into key performance indicators.

### *Customer Experience with PRO Preference Manager*

Customer experience (CX) strategies hinge on putting more control into the hands of customers. With PRO Preference Manager, document recipients can manage their own preferences via our customer's secure web portals. PRO Production Manager then puts this information to work, directing documents to the currently selected delivery channels at production time.

### *Accessible Documents*

It's more important than ever to provide documents in accessible formats for the growing population of blind, partially-sighted, and cognitively disabled individuals. With our solutions customers can automate the creation and delivery of documents in formats such as Accessible PDF, Accessible HTML5, Voiceeye, and other formats. Conversion to accessible formats becomes an integrated component of the production workflow.

## Summary

Choosing the right ADF vendor requires comparing the requirements and priorities of the document producer to the individual features and strengths of the solutions under consideration. Sometimes the best match will be our PRO Production Manager, possibly in conjunction with other CrawfordTech and third party solutions. In other situations, another product may be a better fit. Whatever the choice, a well-chosen automated document factory will help any operation lower costs, raise quality and improve productivity.

## CrawfordTech Solutions

Crawford Technologies develops software and solutions to help enterprises optimize and improve the secure and accessible delivery, storage and presentation of their customer communications.

With over 1,800 customers on six continents, CrawfordTech solutions and know-how enable the largest banks, insurers, healthcare providers, utilities and print services companies to use their existing technologies, documents and data in new ways. We help them navigate the challenges in leveraging legacy applications in the platforms and applications of the future.

CrawfordTech's products, services and domain expertise reside at the nexus of content, data, and output management and are essential components of our customers' digital transformation, output management and document accessibility strategies.

