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WHITEPAPER

The Digital Revolution in Customer Communications
How Automated Document Factories Are Reshaping Business Operations

Automated Document Factory

PAPYRUS
SOFTWARE

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EXECUTIVE SUMMARY

Imagine a world where your customers effortlessly manage their interactions with your company, receiving timely, personalized communications, across all channels. A world where your organization operates efficiently, reducing errors and ensuring compliance.
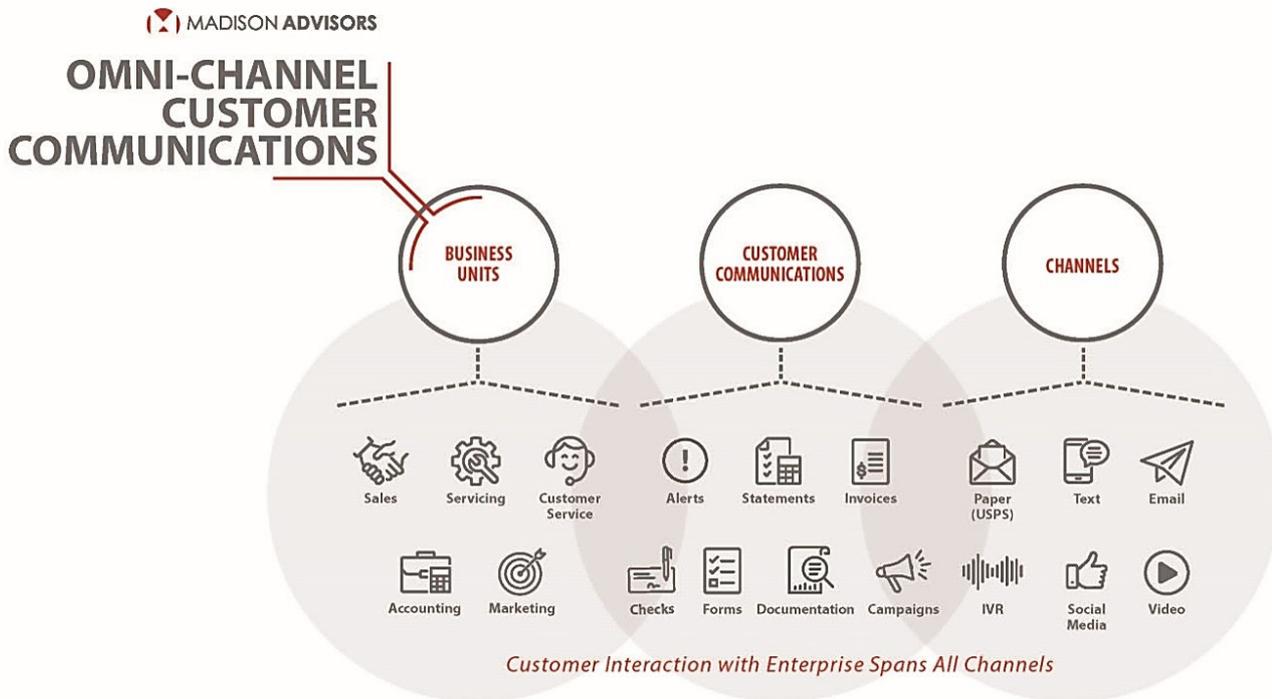
Unfortunately, the reality is far different. Today's communication landscape has changed dramatically. New technologies, advanced hardware, innovative programming languages, diverse data formats, and AI, have reshaped the scene. Moreover, the ways of communication have evolved, with text, emails, and web content being an integral part of everyday interactions. While these advances are welcome, they have also led to greater complexity in output management.

A majority of customers, 90% in the US, use their smartphones to manage email, text messages or voice mail from the one device.

Managing information across various channels, printers, and archiving systems has become increasingly complex, causing critical business documents to be delayed or lost, leading to frustration, missed opportunities, and even regulatory risks. To support the changing customer communications dynamic, enterprises rely on skilled IT teams and have rolled out a patchwork quilt of solutions for digital communications, which sadly often lack the same level of tracking and accountability as the traditional printed documents.

For decades, organizations have relied on automated document factory (ADF) to streamline the production and delivery of printed materials. These systems have been widely used across industries to track individual documents and provide a closed-loop feedback system for accuracy and efficiency. For regulated industries, ADF technology offers the benefit of detailed tracking, providing essential proof of document creation and delivery in case of legal disputes.
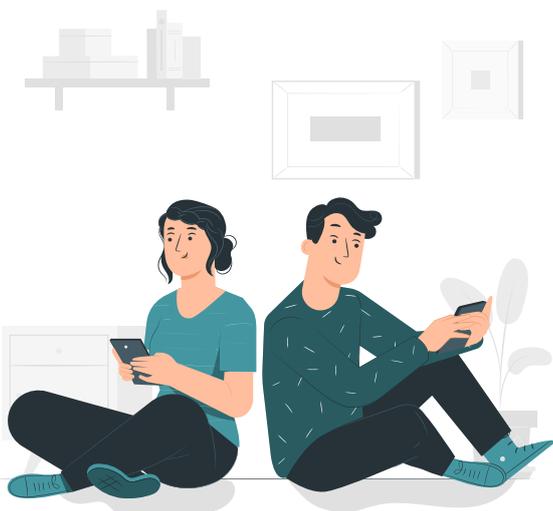
EMERGENCE OF THE DIGITAL AUTOMATED DOCUMENT FACTORY

To address the above challenges, businesses need a modern solution that fully integrates both traditional and digital document delivery: the digital automated document factory (ADF). In this paper Madison Advisors examines the unique capabilities of Papyrus Software's Digital ADF solution. By the end of the paper, you'll understand why implementing a Digital ADF with full integration of print and digital document delivery isn't just an operational decision — it's a strategic move that drives growth and customer loyalty.

> *Of all the participants for this research (2022), Papyrus Software ADF is the only solution supporting digital channels with the same level of tracking and control as print. I think the product really stands out as a leader in digital ADF.*

MADISON ADVISORS - Rich Huff

"Very easy to deploy and maintain services according to the needs of each individual customer."

- Papyrus Software ADF peer review

ARE YOU READY?

Transform your customer communications from a potential liability into a powerful asset!

Read on to discover how Digital ADF can reshape your business operations and give you a competitive edge in the digital age!

MAXIMIZE EFFICIENCY THROUGH CENTRALIZED CONTROL

Central system management is crucial to prevent systems from becoming unmanageable and unreliable. This requires a unified resource library, standardized input interfaces, standardized output channels, common process management, and integrated version control and deployment.

Centralized management can reduce errors by up to 30% and improve efficiency by 25%

ADF provides a single point of control, making it easier to manage multi-channel systems and ensure compliance with regulations.

+25%

-30%

Papyrus Digital Automated Document Factory (ADF) is the ideal solution for businesses seeking to implement centralized management. The platform integrates all the essential components, including a resource library, standardized interfaces, and common process management.

"System is truly interactive among all roles. Each role can receive process information and take actions accordingly to ensure high quality of services."

- Papyrus Software ADF peer review

With out-of-the-box management tools and support for distributed environments, Papyrus ADF can help you manage distributed environments effectively.

APPLICATIONS

INTERFACES

PROCESS

OUTPUT

Papyrus ADF

JOB MANAGEMENT

REPORTING

MONITORING

NOTIFICATIONS

DOCUMENT DESIGN AND DEPLOYMENT

TRACKING

BOUNCE MANAGEMENT
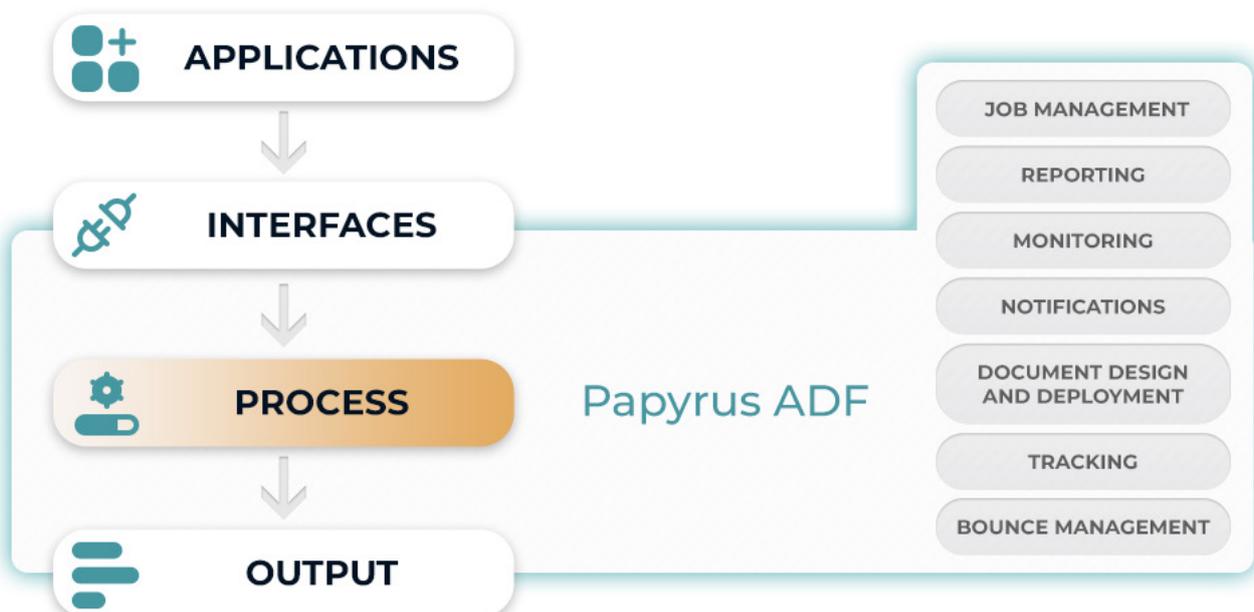
KEY POINTS

» *Rapid deployment:* Implement quickly and easily
» *Centralized control:* Manage all output processes using a single platform with closed-loop feed-back for continuous improvement
» *Omni-channel support:* Reach customers on their preferred channels, including print, email, web, mobile, social media, fax, and archives
» *Seamless integration:* Connect to any system using flexible adapters
» *Unified resource library:* Store and manage all your documents and templates in a centralized location
» *Streamlined process:* Automate workflows and reduce manual errors
» *Version control and change management:* Track changes and ensure data integrity

THE PAPYRUS ADF: A CLOSER LOOK

The Papyrus Digital ADF, developed by Papyrus Software truly integrates both print and digital document delivery. Its key features include process-driven operations, an operations designer for workflow creation, a central document pool for optimization and bundling, closed-loop feedback for tracking, automated handling of returns and bounces, a comprehensive operator cockpit, inbound processing capabilities, flexible archiving, and advanced monitoring and reporting.

> "The great performance is not only for the deliveries of dynamic and high-speed composition, but also process automation and excellent muti-document output management."
>
> - Papyrus Software ADF peer review

Organizations can maintain control over the entire process, starting with data and ending with archiving, with ADF individually configured for each organization and tailored to meet specific customer requirements, including maximum volumes, complexity, and Service Level Agreement (SLAs).
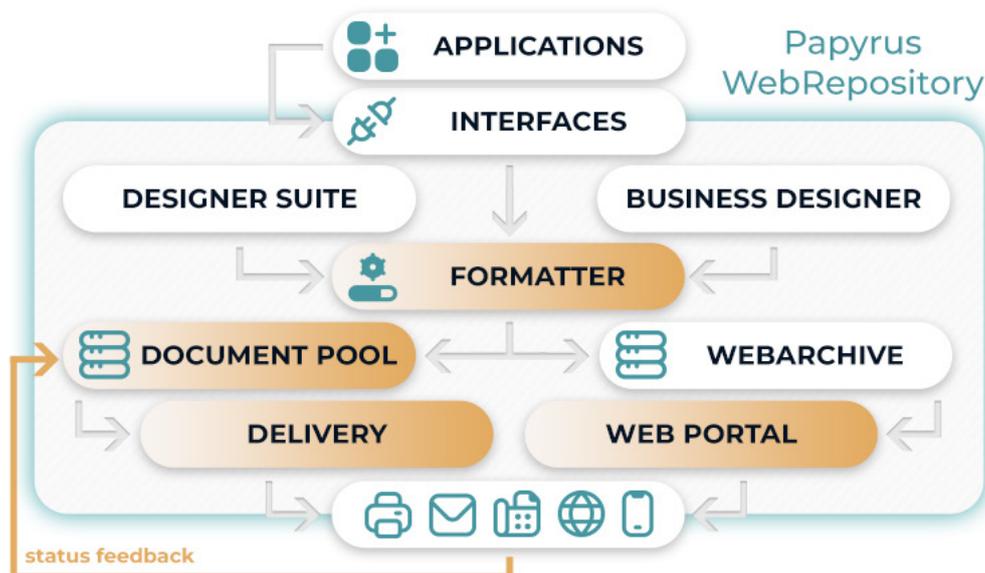
INTERCONNECTIVITY.
THE CORNERSTONE OF THE MODERN ADF

Papyrus ADF's seamless interconnectivity is a key differentiator in today's competitive landscape. With a wide range of configurable adapters, Papyrus ADF integrates with modern or legacy business applications, including ERP/CRM systems like SAP or Salesforce, MS Dynamics and PowerBI.

Papyrus Adapters offer simplified Integration, Interoperability and Connectivity

- Online channels/portals
- Email/messaging
- Mainframe
- Databases
- Business Application integration

The loosely coupled adapters are platform independent and can run on Windows, Unix, Linux, mainframe, or any of the cloud flavors (AWS, IBM, Azure, etc.)

PROCESS-DRIVEN OPERATIONS

Papyrus ADF's robust workflow engine empowers enterprises to streamline and automate their document production processes. By connecting users and documents across multiple channels, the platform facilitates collaborative, customer-centric workflows for faster processing and improved customer satisfaction. Any type of workflow, such as approval workflows, document routing, or others, can be easily designed and executed to optimize efficiency and reduce manual effort.
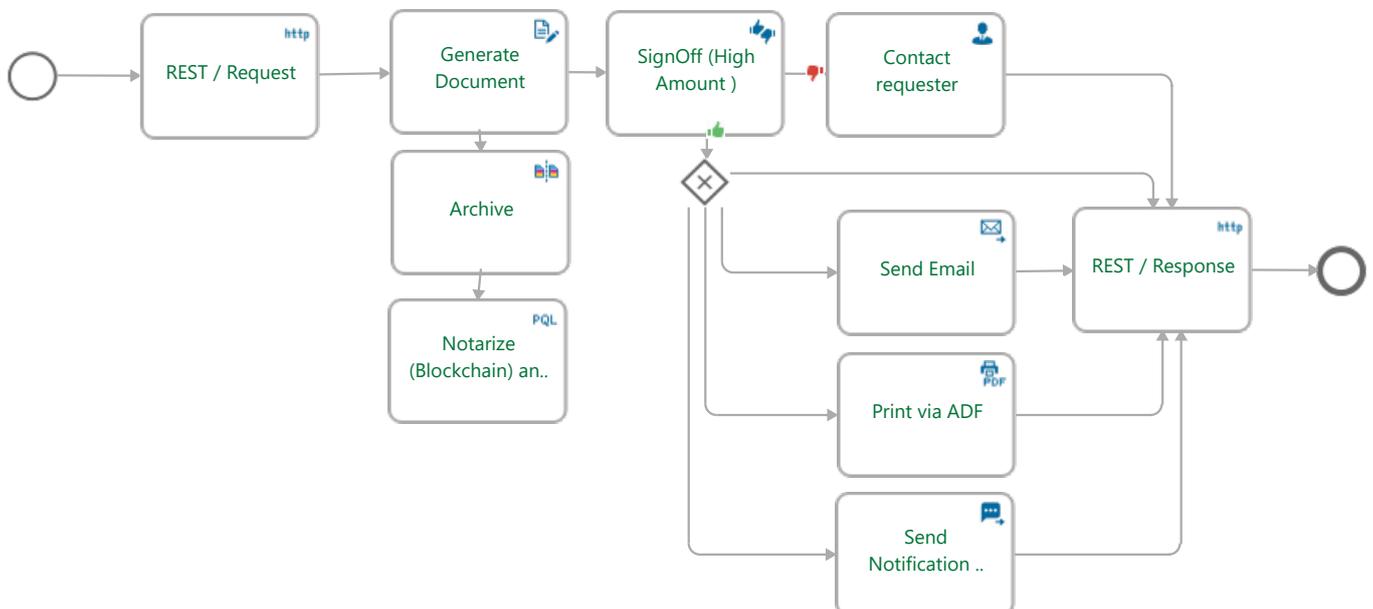
DESIGNER TOOLS:
EMPOWERING NON-TECHNICAL USERS

The Papyrus ADF is tightly integrated with other Papyrus components, including the suite of Papyrus designer tools. Papyrus Designer is a powerful, yet intuitive visual design tool that empowers non-technical business users to create professional-quality documents – statements, invoices, contracts, or marketing materials – with ease.

KEY FEATURES OF PAPYRUS DOCUMENT DESIGN TOOLS

- » *Drag-and-drop interface:* Easily create and modify document layouts without programming.
- » *Rich design capabilities:* Add images, text and data to create visually appealing documents.
- » *Single source document administration:* Create reusable templates and building blocks for efficient document production.
- » *Cross-channel support:* Generate documents for print, web, email, etc., from a single source.
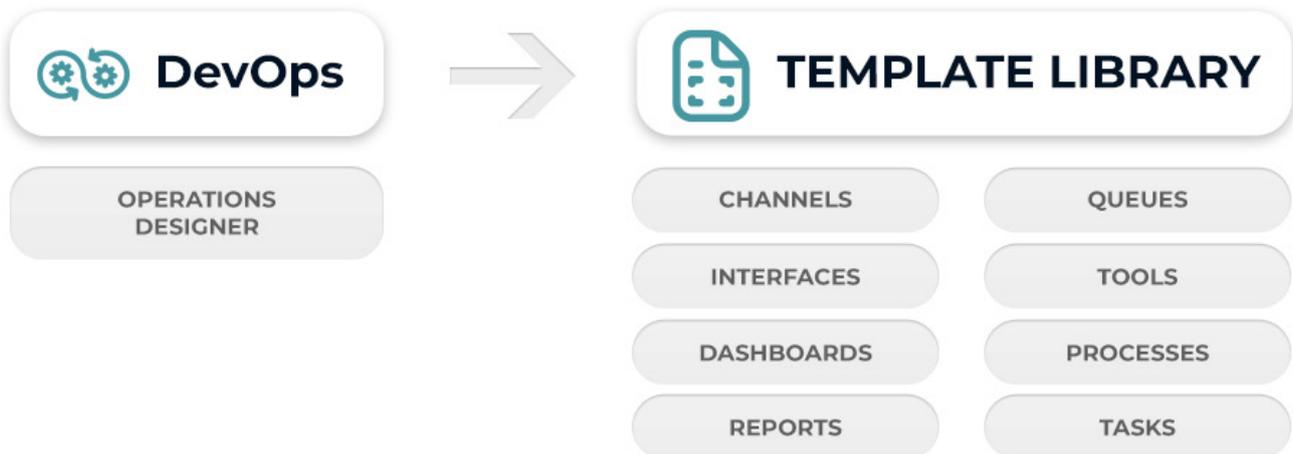
ADF FOR INBOUND CHANNELS AND PROCESSES

Papyrus ADF offers a comprehensive solution for managing both inbound and outbound communications within an omnichannel environment. ADFin, a component of Papyrus ADF, is specifically designed for capturing and processing incoming documents. Leveraging machine learning and user-trained technology, ADFin accurately extracts data from documents and routes them to the appropriate recipients. With built-in process monitoring and user intervention capabilities, organizations can ensure efficient and effective management of high-volume inbound communications.

KEY POINTS

- » *Automated classification* of the incoming communication with distribution to the right department or associate to the belonging case
- » *Automated extraction* (OCR / ICR) management in queues of any incoming comunication
- » *Multiple redirects of incoming communication* e.g., case assignment and archiving queues
- » *Full text search* of any incoming communication with access control linking to the Papyrus Content Governance

DESIGN THE END-TO-END PRODUCTION PROCESSES

Papyrus Operations Designer complements Papyrus Designer by providing a powerful tool for defining and managing production processes. Non-technical users can assemble job templates from reusable elements and easily create workflows, and monitor production activities for formatting, printing and emailing production processes with cross-channel orchestration.

KEY POINTS

- » *Workflow automation:* Define multi-step workflows for formatting, print, and emailing documents.
- » *Reusable elements:* Create and reuse job templates for efficient production.
- » *Monitoring and notifications:* Track production progress and receive alerts for issues.
- » *Reporting capabilities:* Generate reports to analyze production performance.

With Papyrus Designer and Operations Designer, enterprises can streamline their document production process, reduce errors, and improve overall efficiency.

> "Flexible alert system helps different levels of people in the organization to give instant and proper actions to any incidents which may occur during non-stopping operations."
>
> - Papyrus Software ADF peer review

CENTRAL DOCUMENT POOL

The system efficiently collects and manages large volumes of documents from diverse sources, optimizing them for mailing through sorting, bundling and formatting. It handles all document types: batch, online, on-demand, front-office letters, and PDFs/AFPs. Information, such as barcodes, page numbers, or messages, can be added during post-processing for specific delivery channels.

The system automatically reorders pages, manages attachments, prioritizes mail, and balances print loads to reduce costs. Documents are delivered to their intended channels only after being fully processed and optimized by the ADF system. Only after documents have been processed and optimized are they delivered to their intended channels under the control of the ADF system.

KEY POINTS

» *Consolidation of documents* from various sources

» *Optimization* for mailing and delivery

» *Customization options* for page content and formatting

» *Business rule-based automation* for sorting, bundling and prioritization

REAL-TIME TRACKING AND FEEDBACK LOOP

The ADF tracks each document within a job and maintains a closed-loop production cycle by gathering feedback from all devices and process outcomes. Each document has a unique identifier, enabling the ADF to track its status throughout the process. If delivery fails, the system automatically evaluates the reason and takes appropriate action, such as reformatting the document for a different channel.

KEY POINTS

» *Document tracking* throughout the production process

» *Closed-loop feedback* for continuous improvement

» *Automated handling* of delivery failures and retries

» *Detailed delivery* tracking and analytics

EFFICIENT RETURN PROCESSING AND MAIL BOUNCE MANAGEMENT

The system supports both 'internal bounce' and 'external bounce', handling cases such as failed task within a process due to incorrect mail address, as well as messages leaving the system and being returned due to a specific reason. For the bounce operator, both are controlled by the ADF orchestration.

KEY POINTS

- » *Automated handling* of return mail using barcodes and capture solutions
- » *Management* of both hard and soft email bounces
- » *Detailed tracking* of email delivery metrics
- » *Configurable rules* for bounce handling and resending

OPTIMIZED FOR THE CLOUD

The ADF solution handles the production of a large volume of documents. In order to prevent bottlenecks, delays, SLA violations, or overloads, it can request extra resources when necessary, like additional nodes on pods/containers in the cloud. IT resources can be automatically scaled up or down as needed, resulting in high flexibility, reliability, increase in performance and efficiency and lower IT costs.
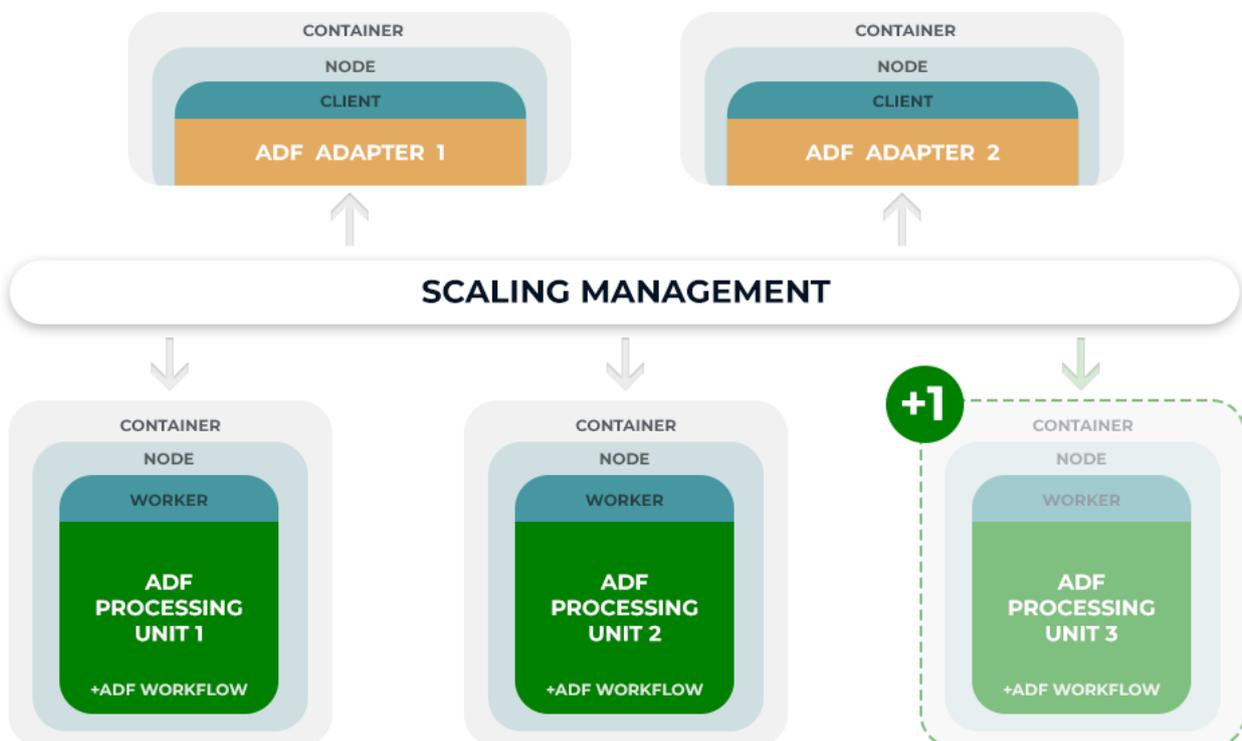
USER-FRIENDLY CONTROL CENTER

The ADF's dashboard provides a comprehensive overview of all communication channels and events. Operators can monitor and manage all processes from a centralized workspace, including document status, input data, and delivery details. The user interface can be customized for efficient search and navigation.

Operators can start and stop adapters, release queues, view logs and edit attributes, generate sample jobs, search, open and preview documents, manage the priority of tasks, as well as manage the workload balance and instantiate jobs.
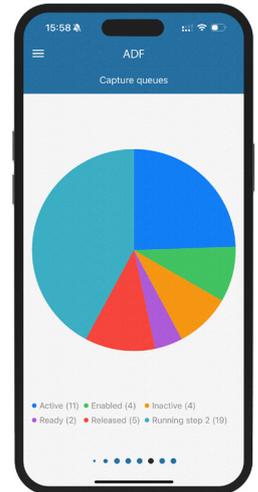
KEY POINTS

- » *Unified view* of all communication channels on your desktop or mobile device
- » *Comprehensive* job management and interactive monitoring
- » *Customizable* user interface for efficient navigation and personalized experience
- » *Real-time access* to information and status of your production procceses

NOTIFICATIONS

The Notification Framework empowers users to set up alerts via email, mobile push, or web notifications in case of any issues.

This eliminates the need for operators to constantly monitor the system. Instead, they can simply check their inbox - if there is an email, they know exactly what's wrong and how to correct this problem.

SECURE AND EFFICIENT DOCUMENT ARCHIVING

The ADF automatically archives processed content for easy retrieval and viewing in Papyrus WebArchive or a third-party archiving solution. Papyrus WebArchive provides robust content governance, secure storage, and efficient search and retrieval capabilities. Documents can be accessed and reprinted from various devices, while retention schedules and access permissions ensure integrity and compliance.

KEY POINTS

- » *Automated archiving* of processed documents
- » *Long-term storage* and retrieval capabilities
- » *Robust security* and access controls
- » *Collaboration features* for document sharing and review

REAL-TIME INSIGHTS AND ANALYTICS

The ADF provides absolute visibility into the document production process, allowing enterprises to track performance, identify bottlenecks, and optimize workflows. The Monitoring Framework enables real-time oversight using mobile devices, while the integrated reporting engine delivers customizable dashboards and reports. This empowers organizations to create a "Command Center" for easy access to key performance indicators and to track SLAs and operational efficiency.
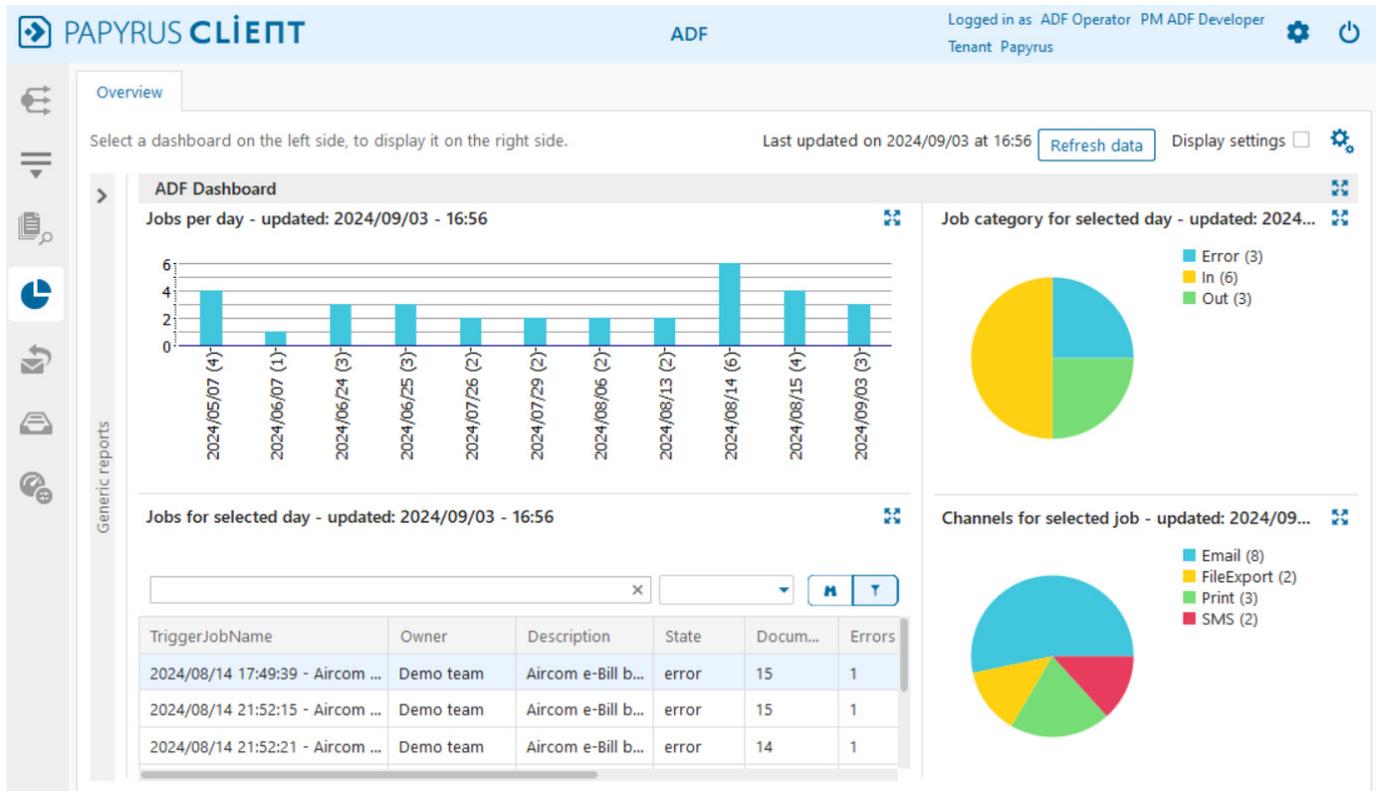
KEY POINTS

» *Tracking and analysis* of document production processes

» *Customizable dashboards* and reports

» *Real-time monitoring* of key performance indicators

» *Support* for decision-making and process optimization

THE STRATEGIC IMPACT OF DIGITAL ADF

Implementing a Digital ADF is not just an operational improvement — it's a strategic move that can significantly impact various aspects of your business.

FINANCIAL IMPACT

Cost Reduction

Lowers operational costs by reducing manual processing. Optimizes postage costs through intelligent bundling and channel selection.

Improved Cash Flow

Ensures timely delivery of invoices and contracts. Reduces payment delays caused by lost or misdirected communications.

Revenue Generation

Enables targeted upsell and cross-sell opportunities within communications. Improves customer retention through better communication experiences.

OPERATIONAL EFFICIENCY

Streamlined Processes

Automates repetitive tasks, freeing up staff for higher-value activities. Reduces errors associated with manual document handling.

Faster Time-to-Market

Enables quick creation and modification of communication templates. Supports rapid deployment of new communication campaigns.

Improved Visibility and Control

Provides real-time insights into all communication processes. Enables proactive management of potential issues.

CUSTOMER EXPERIENCE ENHANCEMENT

Personalization at Scale

Delivers tailored communications based on individual customer preferences. Ensures consistency of messaging across all channels.

Timely and Relevant Interactions

Enables real-time or near-real-time communications based on customer actions. Supports proactive customer service through timely notifications.

Channel Flexibility

Allows customers to choose their preferred communication channels. Supports seamless switching between channels during customer journeys.

"Strong tracking capabilities give us to record all necessary information for periodical reports to different customers."

- Papyrus Software ADF peer review

REGULATORY COMPLIANCE AND RISK MITIGATION

Consistent Compliance

Ensures all communications adhere to regulatory requirements. Provides audit trails and archiving for proof of compliance.

Data Security

Centralizes control over sensitive customer data. Integrates with existing security infrastructure (e.g., Active Directory).

Reputation Protection

Reduces the risk of miscommunication or non-compliant messaging. Supports quick response to communication-related issue.
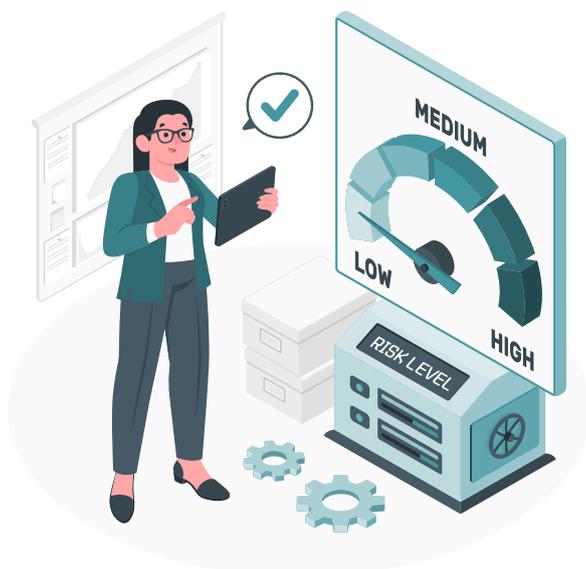
FUTURE TRENDS OF CUSTOMER COMMUNICATIONS

As we look to the future, several trends are likely to shape the evolution of Digital ADFs:
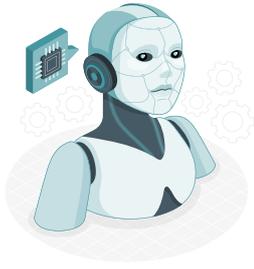
AI-Driven Personalization

Advanced analytics and machine learning will enable hyper-personalized communications. Predictive models will anticipate customer needs and tailor messages accordingly.

Conversational Interfaces

Integration with chatbots and virtual assistants for more interactive communications. Voice-activated interfaces for hands-free document access and management.

Blockchain for Verification

Use of blockchain to ensure the authenticity and immutability of critical communications. Enhanced security and compliance capabilities.

Augmented Reality (AR) Integration

AR-enhanced documents that provide interactive experiences. Visual guides and 3D models embedded in communications.

Edge Computing for Real-Time Processing

Faster processing and delivery of communications through edge computing. Enhanced capabilities for location-based and context-aware messaging.

Advanced Analytics and Reporting

More sophisticated analysis of communication effectiveness and customer engagement. Predictive analytics for optimizing communication strategies.

CONCLUSION

In today's digital-first world, effective customer communication is not just a operational necessity—it's a strategic imperative. The Digital Automated Document Factory represents a significant leap forward in managing the complexity of modern, multi-channel communications. By implementing a comprehensive Digital ADF solution like the one offered by Papyrus Software, businesses can:

Streamline operations and reduce costs

Enhance customer experiences through personalized, timely communications

Ensure compliance and mitigate risks

Gain real-time visibility into communication processes

Position themselves for future innovations in customer engagement

The journey to digital transformation in customer communications may seem daunting, but with the right strategy and tools, it's a path that leads to significant competitive advantages. As customer expectations continue to evolve, those organizations that can deliver seamless, personalized, and timely communications across all channels will be best positioned for success.

Madison Advisors believes the Papyrus ADF is the most robust digital ADF available. To keep up with changing customer expectations, enterprises will need advanced solutions to create and deliver customer communications. Papyrus ADF is one such solution.

THE TIME TO ACT IS NOW!

How will you transform your customer communications from a potential liability into a powerful asset?

**CONTACT
PAPYRUS SOFTWARE**

PAPYRUS**SOFTWARE**

Papyrus Software is a pioneering expert in enterprise software with 35 years of customer-oriented innovation in business communication and process management. The Papyrus Platform offers a holistic approach to business communication and process automation, providing consolidated inbound and outbound business communication management, AI-powered process and case management, and content services in one unified platform.

MADISON **ADVISORS**

Madison Advisors specializes in offering context-specific guidance for a range of content delivery strategies, particularly those addressing enterprise output technologies and customer communications. Our analysts are dedicated to technology and market research, delivered through short-term project engagements as well as articles, publications, and presentations.