

DOCUMENT PROCESS AUTOMATION IN

HEALTHCARE

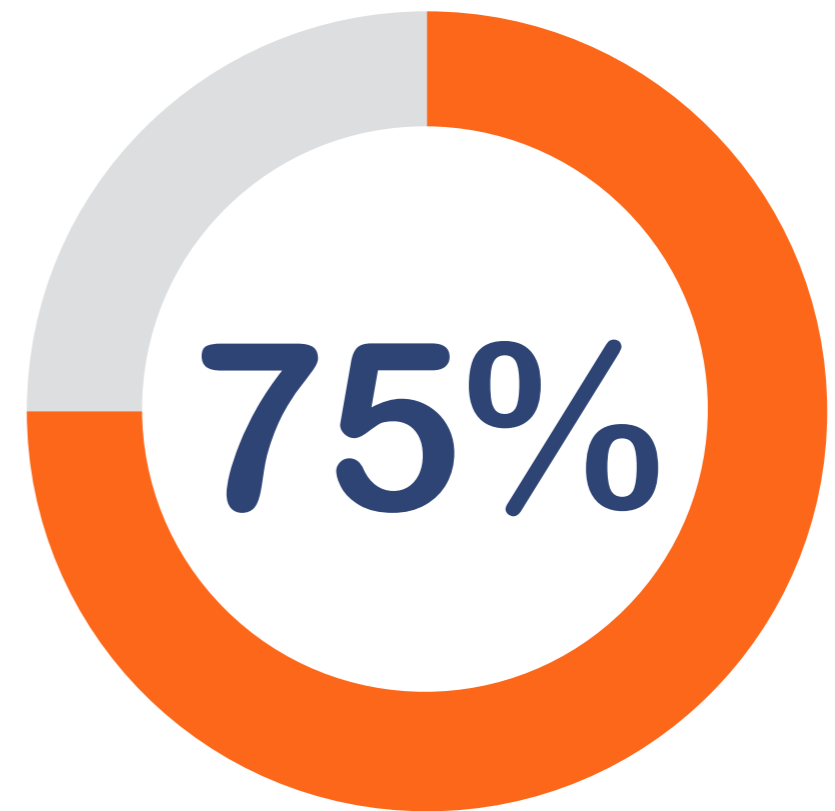


INTRODUCTION

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Our phones, lights, thermostats, security systems, messaging platforms, refrigerators and cars are all connected. Not only are they connected, the process of getting them to work in-concert is inexpensive and simple to set-up. It has become second-nature to store our data in the cloud which we access from our computers, mobile devices and entertainment systems. So why are healthcare providers still exchanging 75% of patient information using fax?*

This eBook serves as an introduction to Document Process Automation and how the new generation of Document Process Automation providers are taking a new approach to tackling healthcare document processes.



Healthcare providers are still exchanging 75% of patient information via fax

IDC White Paper | Fax Market Pulse: Trends, Growth and Opportunities. Authors: Ron Glaz, Holly Muscolino. June 2017



BACKGROUND

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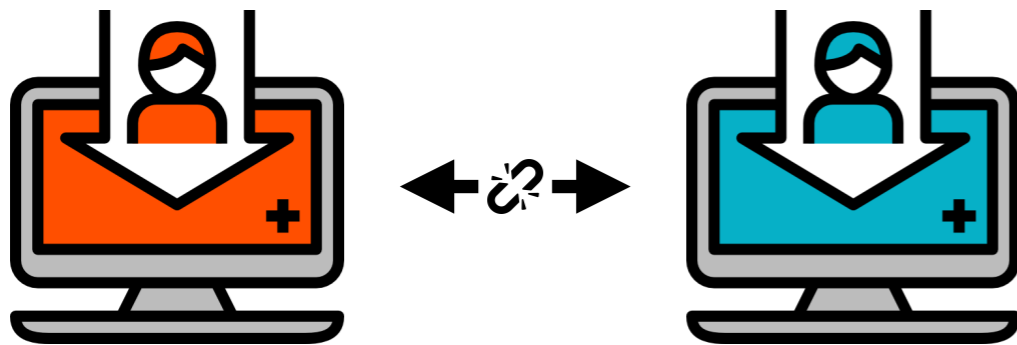
EHR – The Electronic Health Record

The electronic health record is designed to contain the complete, historical profile of a patient's health. In an ideal world, the electronic health record would perfectly encapsulate all patient information from every encounter, regardless of provider or location.

If patients only ever used a single healthcare system, the EHR would perform flawlessly; all patient data managed by a single system, accessible to everyone providing care to them. Unfortunately, that is not the reality. Much of the care patients require involves multiple providers, each with their own EHR system.

BACKGROUND

Today, exchanging patient information between providers is complex and those most equipped to tackle the issue (the EHR vendors) are not motivated to do so. The creation of open, highly interoperable systems would also make it easier for their customers (the providers) to move to a different platform.



It is this environment which continues to keep providers relying on documents as a “simple” mechanism for sharing patient data. And, the case for documents as an outbound delivery mechanism is strong: cost-effective to implement, universally accepted, no frameworks to consider, and easy to use. However, those outbound benefits become significant inbound challenges with providers struggling to cope with unstructured patient documents that must be transformed, normalized and processed.

BACKGROUND

The net effect is healthcare providers find themselves with a two-tier system: structured patient data in the EHR, and everything else. The patient information contained in the “everything else” is equally critical as the data in the EHR yet it’s often managed as peripheral content.

Enter Document Process Automation (DPA) which seeks to accelerate and simplify the process of transforming inbound document images into searchable documents and actionable data that can become a usable part of the patient record.



WHAT IS DPA?

WHAT IS DOCUMENT PROCESS AUTOMATION?

DPA comprises a set of software capabilities that enable providers to integrate inbound clinical documents and the relevant patient information they contain into their own processes and applications (such as an EHR). Documents automated via a DPA system will typically transition through three distinct phases:

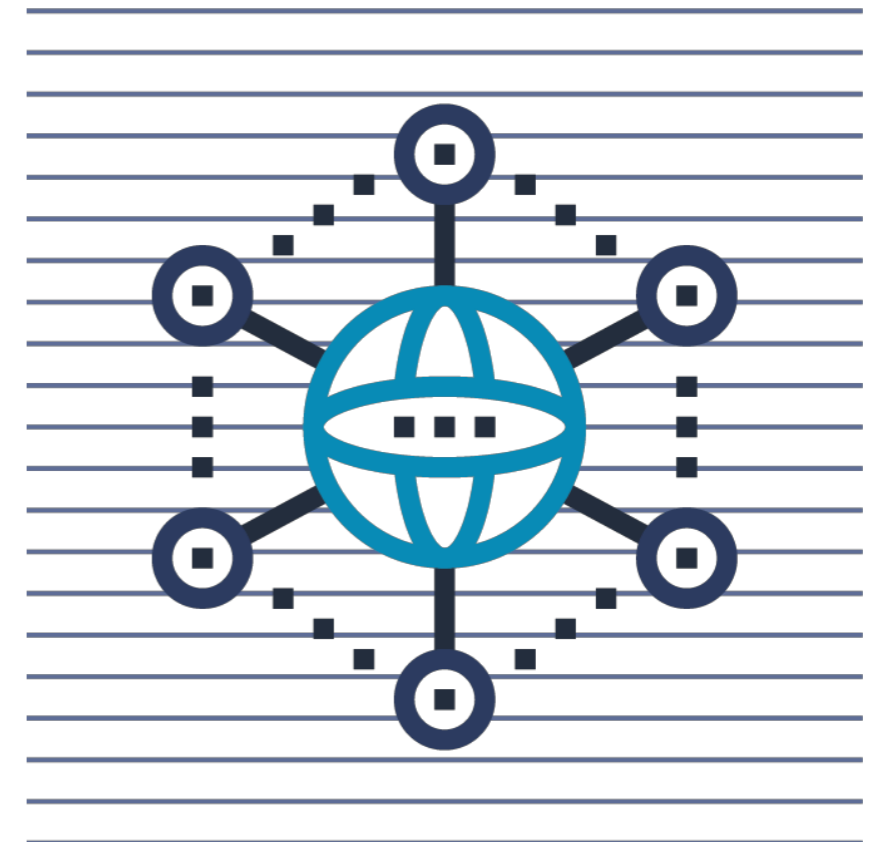
Document Capture: The ingestion and transformation of inbound document images (often .tif) into searchable text files for the purpose of document identification and data extraction. Data extraction capabilities range from simple barcode recognition to highly sophisticated, self-learning intelligent data extraction. The capture process is critical to DPA. Accurate document identification and data extraction is essential for documents to be appropriately processed and integrated into the user's target applications.

Workflow: Workflow is a term that means different things for different people. For clinicians, workflow is often used generically to describe the series of activities staff need to execute in a coordinated fashion across one or more clinical care settings. Many document-centric clinical workflows are organized around the manual work staff must do to route patient documentation and extract relevant data from them and then manually enter that data into the EHR in an appropriate format. This work is labor intensive, error prone and distracts clinicians from their primary responsibilities of delivering quality patient care. The workflow capabilities of DPA solutions are designed to facilitate or automate the types of team-based clinical workflows described above in which the primary work items being processed are patient documents.

WHAT IS DOCUMENT PROCESS AUTOMATION?

Integration: Integration focuses on inserting the documents and extracted data into one or more target applications. In the context of this document, that target application is the EHR. Integration can be as simple as associating an inbound document with the appropriate patient record or as complex as integrating extracted data fields with specific data fields inside a patient record in the EHR.

DPA is however, more than the sum of these parts. A DPA solution must provide the appropriate level of security and transparency so that providers are able to protect patient information, gain visibility into their processes and efficiently operate in accordance with any external regulations. Furthermore, an effective DPA solution will be flexible enough to effectively manage exceptions and changes in processes.





CLOUD DPA VS LEGACY TOOLS

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Effective document identification and data extraction is crucial in document process automation as it determines how the patient information is processed and integrated into the EHR. While Cloud DPA platforms and older legacy capture tools share some similar techniques, the cloud model offers several benefits that are far beyond the reach of on-premise tools.

Application-Specific Platforms

Traditional capture tools were developed to provide a set of functional capabilities rather than for a specific type of end-user. The go-to-market approach has led to highly sophisticated products requiring extensive and costly customization in order to meet the needs of the end-user. These tools also needed to be integrated with content management systems and line-of-business applications.

Cloud DPA providers are taking a different approach by providing a simpler yet more cohesive set of capabilities purpose-built to manage the entire document process for a particular application or industry. Customers benefit by having a single interface to managing all their document processes. Having a unified architecture for capture, workflow and integration also greatly simplifies the process of tracking documents, measuring process performance and identifying operational issues.

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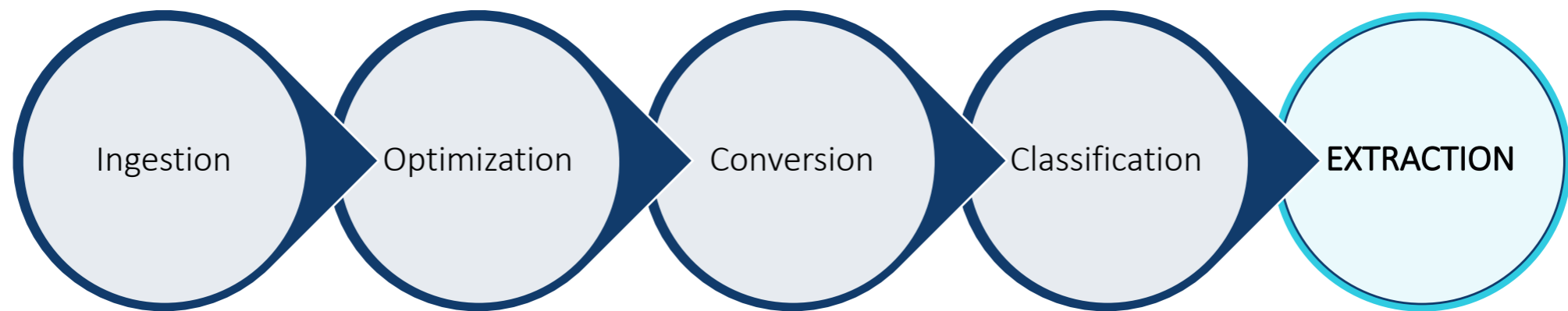
Specialized Capture Engines

Unlike traditional document capture vendors, newer Cloud DPA providers frequently choose to develop their platform for a specific market segment. This approach enables the provider to optimize core elements of the platform for specific application.

For example, healthcare-focused DPA providers are able to significantly increase data extraction accuracy by fine-tuning individual fields such as patient name, date of birth, encounter date, chart number etc. This level of optimization not only yields better results for users, it also reduces the implementation effort for customers as much of the configuration is already in place.

Another example relates to the types of documents DPA providers decide to optimize their platforms for. Clinical-focused DPA providers will primarily concentrate on unstructured documents. The methods for extracting data from unstructured documents is vastly different from the techniques used for structured and semi-structured documents. Again, the end result is improved extraction accuracy compared with non application-specific platforms and less customization for the customer to undertake.

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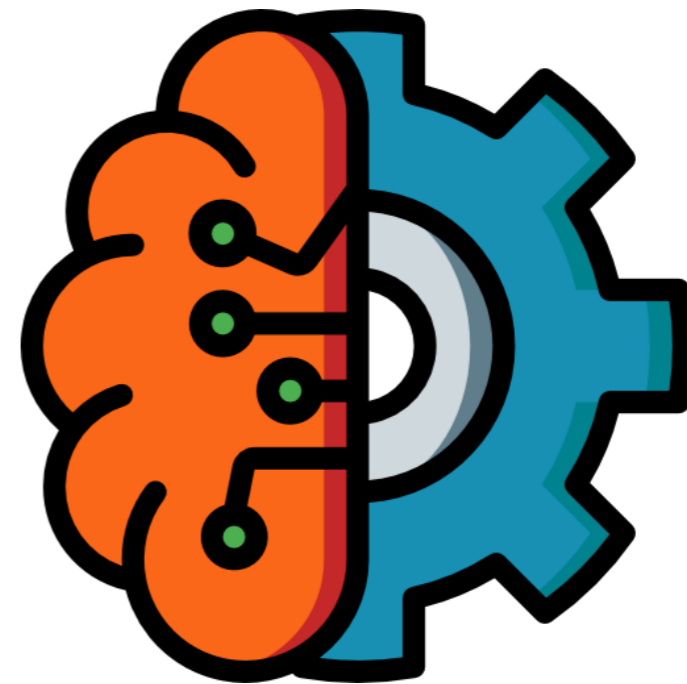
CLOUD DPA VS LEGACY TOOLS

Artificial Intelligence (AI)

Legacy document capture tools are focused on *what* data to find. Using the *what* approach requires that providers define every potential combination of values they may need to extract. This form of pattern matching demands the creation of complex rules sets. This approach works well when the document set is well-defined, and the extraction requirements are simple. This approach does not perform well with unpredictable document sets and complex extraction requirements.

Cloud DPA providers have a significant advantage in this area. Rather than focusing on just *what* data to find, Cloud DPA providers are able to use AI to learn *how* to find the data it is looking for. By learning *how* rather than *what*, DPA providers are able to achieve superior extraction results regardless of how varied the document set is or how many brand-new document layouts it encounters.

In order for AI-based extraction to succeed, the AI engine needs access to a significant amount of extraction data – something Cloud DPA providers have.



CLOUD DPA VS LEGACY TOOLS

Collective Performance Optimization

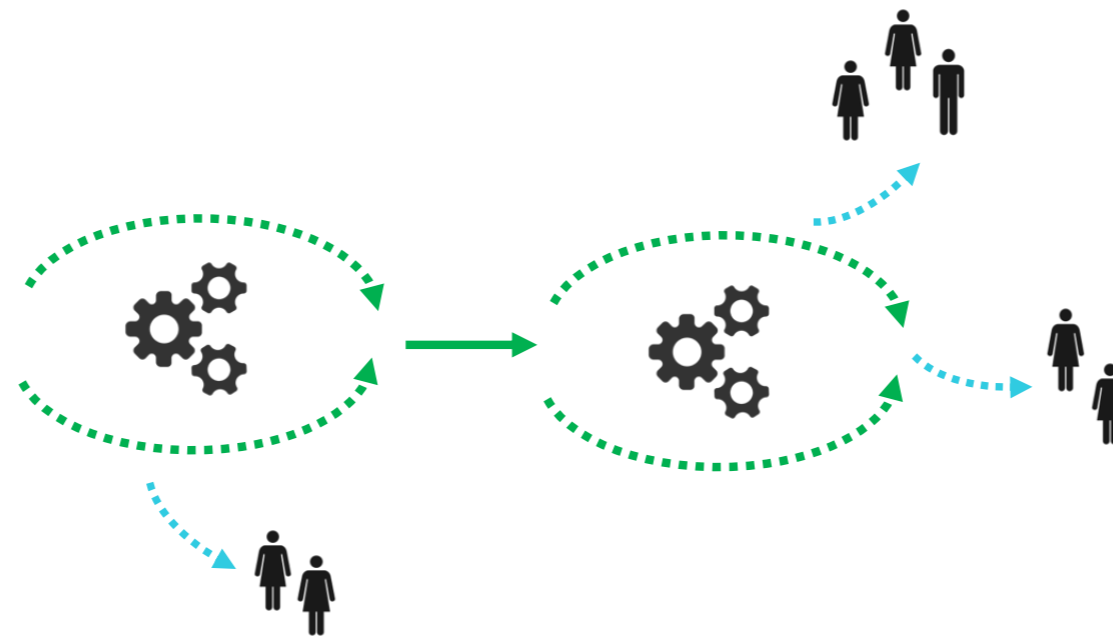
One of the most significant differentiators between Cloud DPA providers and legacy capture tools is collective intelligence. In a legacy capture environment, the customer's extraction accuracy is determined solely by the improvements they make to their processes. In contrast, Cloud DPA customers benefit from improvements made by the entire platform collective.

The DPA provider's AI engine operates across the entire platform, learning how to more effectively find the data it needs to extract. While no customer data is ever exchanged, the patterns the AI engine identifies with tenant A can help improve the extraction performance of tenant B.

In machine learning environments, humans train the AI engine by selecting the correct target data values on a set of documents. In some cases, this “training” happens as part of the implementation, in others, training occurs when at the AI engine fails to find the correct values. In a Cloud DPA environment, this training benefits the AI engine which in turn benefits all tenants on the platform.

Collective intelligence delivers even greater value when the tenants on the platform operate in the same (or similar) space and thus dealing with similar kinds of documents.

CLOUD DPA VS LEGACY TOOLS



Rules-Driven Workflows

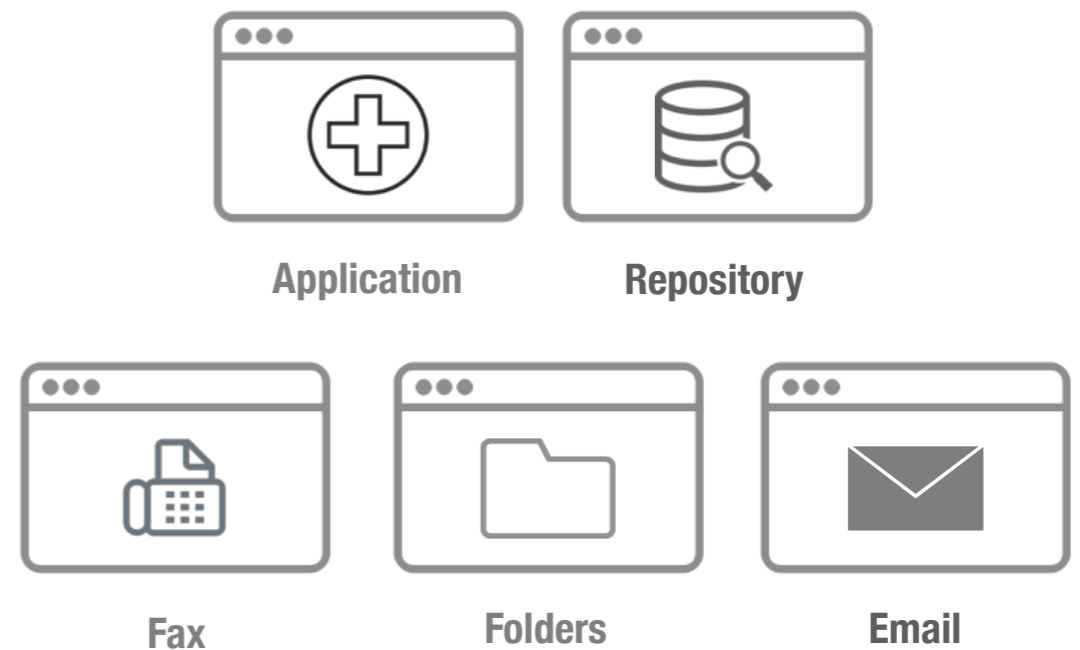
Traditional workflow tools require providers to have captured every variable about the flow of documents in the processes. That flow is then translated into a rigid workflow process where work moves from step A to step B and users are given limited options in how they complete their work.

In contrast, the modern DPA approach accepts that flow of documents is unpredictable. Steps are replaced with business rules which enforce certain policies or process requirements but not the order of the steps required to complete the work. This approach creates more elastic, easier-to-manage processes which also give users more leeway to determine the flow of documents.

CLOUD DPA VS LEGACY TOOLS

Integration and delivery

Integrating traditional capture and workflow tools with line-of-business and content management systems required additional professional services engagements. These engagements frequently resulted in expensive custom integrations that were challenging to get effective long-term support for. Cloud DPA providers view integration and delivery as a core product component rather than an up-sell opportunity. Integrations and transport systems are architected for the platform, not at an individual customer resulting in more robust external connections for customers.



CLOUD DPA VS LEGACY TOOLS

Scalable Processing

On-premise or hosted document capture tools require customers to size their implementation based on maximum potential processing load. This approach often leads to customers spending more on licenses and hardware than they need. Pre-planned scaling also prevents customers from effectively managing unforeseen spikes or short-term fluctuations in processing volume. Most Cloud DPA providers enable customers to pay based on actual usage. In cases where the processing volume rapidly changes, customers simply pay for additional usage.

Reliability

Traditional document capture vendors architected their products for the client/server environment.

Over time these vendors have recognized the need to offer a web-hosted version of their product. The challenge for these vendors is taking a client/server product and “making it cloud.” Retrofitting aging code and re-architecting a single tenant product into a multi-tenant product often yields undesirable performance and availability results for customers.

DPA providers building exclusively for the cloud do not face the same complexities. Rather than simply trying to gain market parity, they have been able to focus resources on developing active-active multi-location platforms. In the event of a node or datacenter becoming unavailable, these infrastructures are designed to continue to deliver uninterrupted performance by automatically re-routing traffic.

WHAT IS DOCUMENT PROCESS AUTOMATION?

Compliance

Healthcare providers and those in other regulated industries are responsible for managing patient information in accordance with government regulations such as HIPAA. Healthcare Cloud DPA providers offer an additional benefit over legacy tools by assuming the compliance risk relating to the documents they process. Once inbound documents are captured by the DPA platform, the DPA provider is responsible for secure storage and transport of the documents and extracted data while it remains on the platform.



IS CLOUD DPA THE BEST OPTION FOR EVERY PROVIDER?

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The short answer is no.

Given that many DPA platforms focus on a specific market segments, providers will need to find a platform that is closely aligned with requirements. Providers looking for a broader platform on which they can implement a range of applications will find themselves better-served combining dedicated capture, workflow and application integration platforms.

Providers looking to solve specific document-process challenges rather than building an enterprise-wide infrastructure will discover that Cloud DPA exists as a practical and cost-effective option capable of delivering results more quickly than traditional tools.



Document Process Automaton
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101 Stewart Street | Seattle | WA | 98101
+1 206-441-3346 | sales@concord.net | concord.net