Driving Process Excellence through Intelligent Automation across the Contract Management Lifecycle

By adding intelligent automation to the contract management process, organizations can improve contract search, retrieval and management, drive cost savings, speed processing, boost compliance and reduce risk.

Executive Summary

There's no getting around it: Enterprises must deal with a daily onslaught of contract documents spanning many purposes, formats and sources, whether it's a purchase order, sales or service agreement, invoice, insurance policy, loan warranty, mortgage, rental lease, employee letter, non-disclosure agreement or another type of legal and binding agreement.

Most organizations are saddled with enormous and unstructured volumes of legal documents. In our experience, the average number of contracts per organization can range into the hundreds of thousands per year, with large companies potentially generating several thousand new contracts every month. Over 70% of companies in a recent survey said their contract process was not automated, with 58.6% using e-mail and 49.4% using shared drives.[1] This reveals a need for enterprise contract management (ECM), a software solution that aims to bring structure and automation to the contract management lifecycle by ensuring that a contract is structured properly and reviewed appropriately,

its provisions enforced and intent realized, and its weaknesses recognized and corrected.[2]

An ECM solution should include the following features and capabilities:

- Seamless workflow and integration across enterprise departments and systems.
- A central repository with state-of-the-art document management capabilities.
- The ability to send automated alerts based on milestones.
- An intuitive and robust workflow management system for contract authoring, review and approvals.
- Auditing and reporting on key performance indicators to measure contract performance.

This white paper reveals how large organizations can get the best value from their ECM solutions by using intelligent automation tools to address the challenges of efficiently managing paper-based and digital images of contract documents.
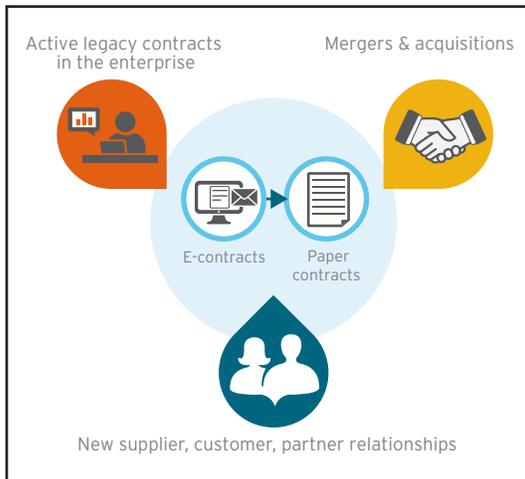
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Contract Management Challenges

Figure 1

Why an ECM Implementation Alone Isn't Enough

While many enterprises are adopting ECM solutions, they face three main challenges when trying to improve their contract management processes (see Figure 1):

- **Existing contracts:** Almost every company has a large pile of active legacy contracts, in both digital and, more often, paper form, and 85% of companies still use manual processes to manage sales contracts.[3] As a result, a document such as a statement of work (SOW) for application engineering services sourced to an IT vendor for a multi-year engagement may have been created and signed years earlier, but it would need to be referred to and adhered to today, until the engagement is completed, according to the contract terms. If the SOW were in digital format, it could be stored in a centralized repository, if one exists, or in one of many disparate systems, leading to search and retrieval challenges.

- **Mergers and acquisitions:** Global merger and acquisition (M&A) activity hit $3.5 trillion in 2014, up 47% from 2013,[4] and over 300% from a decade ago. A major outcome of the resultant restructurings is a sudden spike in the number and variations of contract documents in the merged or parent enterprise. In some cases, the parent company may have finally succeeded in establishing an ECM solution pre-merger but once again faces the daunting task of dealing with a complete lack of structure, templates and formats via the contracts acquired in the transaction.

- **New contracts from unstructured sources and in a variety of formats:** Virtually every

aspect of an organization is guided by a contract document, including the company's engagement with partners, suppliers, customers, contractors and employees. For each type of contractual relationship, the actual legal agreement that's produced may differ dramatically based on the participating entities (organizations), the nature of agreement (purchase, lease, hire, services, etc.) and, often, the individual contracting officer(s) involved in the negotiations and decision-making process. Thus, for each new engagement, an enterprise will typically end up with completely new contract sources, types, formats and structures.

Three Key Business Challenges

As companies come to grips with these issues, they must overcome several obstacles:

- **Contract search and retrieval:** Gaining visibility into contract activity is necessary for the enterprise to maximize the value of negotiated agreements. A complete solution should enable quick and easy contract retrieval through structured search terms, contract metadata and tags, and enterprise-wide search engines.

- **Contract compliance:** Tracking key milestones, deliverables and service level agreements over the contract's lifecycle is necessary to ensure that the contracting parties realize the benefits negotiated. Of equal importance is paying attention to penalty clauses that could potentially result in significant financial losses.

- **Managing the base of pyramid (BoP):** While many large organizations today are able to engage with their top customers, suppliers and partners through structured and digitized contracting systems because of the sheer volume and value of contracts involved, they face a challenge when it comes to dealing with the numerous smaller entities that form the base of their supplier/customer/partner pyramid. In these cases, contracts are often in paper form and do not work through software-based contract management solutions, which can result in direct revenue leakage through missed, incorrect or delayed invoicing, as well as less direct but equally critical losses, such as intellectual property. Manual search and management of the sheer volume of contracts creates expensive inefficiencies in the enterprise, resulting in:

  > Increased costs due to the need for manual effort, as well as the inability to deploy time and resources into more productive initiatives.

- Complex evaluation, negotiation and approval processes.

- Lack of business intelligence (e.g., total annual spend on purchasing and/or contracting, compliance ratios, the number of contracts expiring or with renewal opportunities in the next months, etc.).

- Increased corporate exposure to operational risks and financial liability.

- Poor enforcement of contractual obligations.

- Expensive lost opportunities in terms of terminations, renewals and options.

Introducing Automation into Contract Management

Two approaches that organizations should consider when automating contract management include:

- **Optical character recognition (OCR).** With OCR, images of typewritten or printed text are mechanically or electronically converted into machine-encoded text. This is a common method of digitizing printed text so that a document can be electronically edited, searched, stored more compactly, displayed online and used in machine processes, such as machine translation, text-to-speech, key data and text mining.

  Today's OCR engines can be used for various applications that require data to be extracted meaningfully out of images into structured text formats, such as XML, XLS, JSON and relational database formats, for further querying and action.

  OCR can be applied in two broad ways to contracts:
  - Converting the complete contract document to text.
  - Extracting contract metadata from the documents.

  In both cases, it is assumed that the contract documents are made available in an electronic format, regardless of source and template. Documents may be received via e-mail, fax, Web uploads or in paper format; in the latter scenario, the document would need to be scanned into a repository. The key lies in the OCR engine's ability to produce a text version from the scanned images (see Figure 2).

- **Intelligent process automation (IPA)** combines elements of artificial intelligence and machine learning with automation to improve business processes. We help organizations enable IPA through a powerful, proprietary framework of technology, methodology, best practices and tools and integrated analytics. IPA is an advanced form of robotic process automation (RPA), which can be defined as a virtual software robot taught to carry out routine tasks previously handled by humans, in the same way, and in the existing system landscape. (For more on IPA and RPA, read our white paper "The Robot & I" or

Contract Process Automation with OCR

Sources	Process	Outcomes
Paper Contracts Scanned into digital formats via mailroom services, crowdsourcing	**Data Extraction with OCR:** Contract metadata / Contract classification / Contract extraction	Easy search & retrieval / Contract compliance / Managing the base of the pyramid
E-contracts From e-mail attachments, faxes, Web uploads, ECM and DMS repositories, etc.		

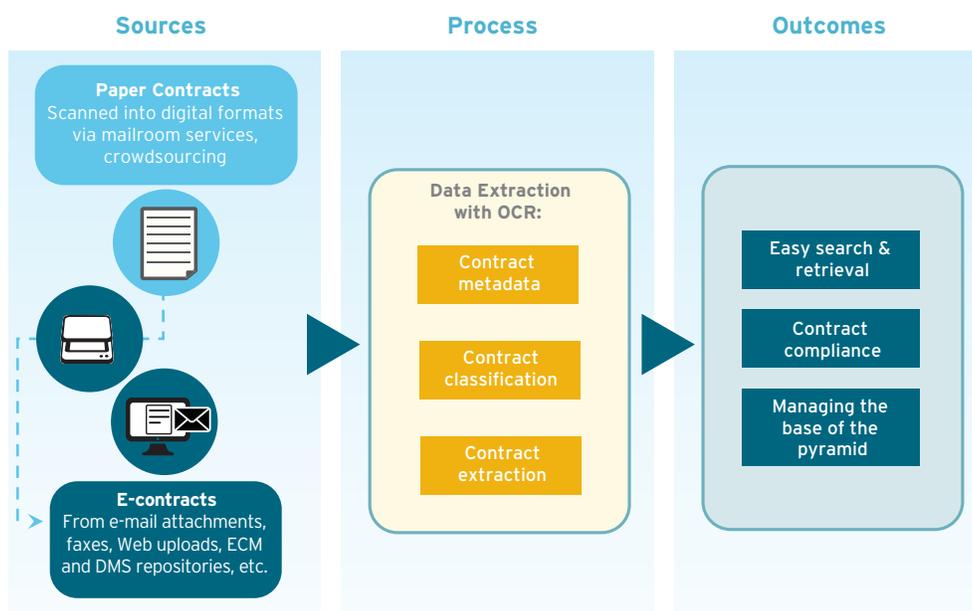Figure 2

watch our video series). When IPA is applied to back-office operations, the following features should be present:

> Digitized input, with limited human intervention.

> Structured, rules-based, repeatable, computer-based tasks.

> High possibility for error or re-work, with limited need for exceptions.

> The need to make decisions and use algorithms.

> The need to access multiple systems.

> Fluctuating workloads and volumes with long average handling times.

Key IPA applications in the contract management lifecycle include conflict checks and client billing. Organizations can create and train contract analytics robots[5] to extract and report contract data (typically using an OCR engine) and then perform tasks dependent on the data extracted. IPA solutions can also be applied to contract negotiations, as the robot can be taught negotiation limits to draw up a report covering all contracts that fall outside those parameters.

IPA can increase the efficiency of contract management by checking and reporting all payments made and received against the contracts signed with another party. IPA solutions can also be used to manage "dirty" interfaces, in which data, printed or handwritten, needs to be transferred between applications that are not integrated (e.g., automatically updating contract values with payment dates from a document in the company's contract management system to the revenue management system).

In summary, IPA can be applied in contracts management to accomplish the following:

> Save processing time through automation of structured and rules-driven processes.

> Monitor and report on payments against contractual terms.

> Minimize human error and improve contract negotiation performance.
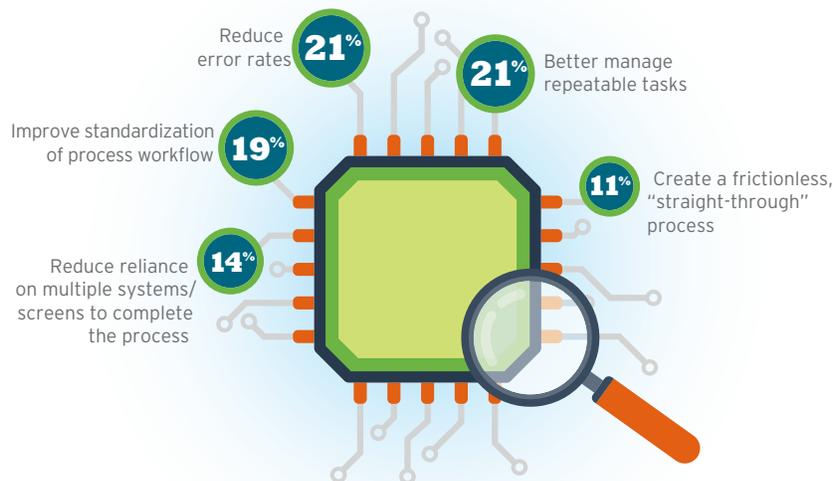
Figure 3 highlights the attributes and potential impacts of robots in business process automation, based on a survey conducted by the Cognizant Center for the Future of Work.[6]

Contract Processing with OCR

An OCR engine typically executes three stages while processing a scanned contract document (see Figure 4, next page). In the first stage, the scanned images are subject to one or more of several techniques to reduce or remove the "noise." For instance, additional dots or lines may appear on the image during scanning, interfering with the actual gridlines of a table in an invoice, or there may be a coffee stain on the original document that affects the readability of critical characters or words. Sometimes, the document may have been skewed or tilted during scanning. In all of these scenarios, the OCR reader's recognition accuracy is significantly reduced unless the noise is removed.

The second stage entails character recogni-

The Impact of IPA on Business Process Services

Reduce error rates 21%

Better manage repeatable tasks 21%

Improve standardization of process workflow 19%

Create a frictionless, "straight-through" process 11%

Reduce reliance on multiple systems/screens to complete the process 14%

Base: 537 North American and European Organizations
Source: Cognizant Center for the Future of Work, 2015
Figure 3

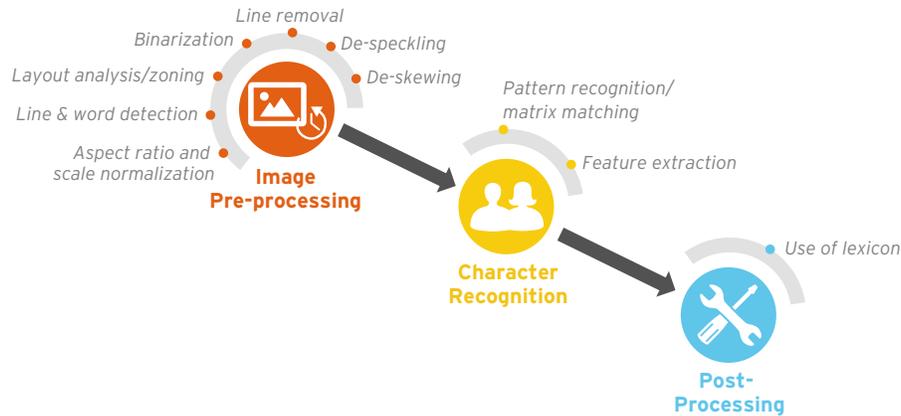## Three Stages of OCR for Processing Contract Documents

Figure 4

tion, either via pattern matching (also known as matrix matching or pattern recognition) or feature extraction. In the first case, algorithms compare an image with a stored glyph (an elemental symbol that represents a readable character) on a pixel-by-pixel basis. Feature extraction decomposes glyphs into "features," such as lines, closed loops, line direction and line intersections, which are compared with an abstract vector-like representation of a character, which may be reduced to one or more glyph prototypes.

OCR accuracy can be increased if the output is constrained by a lexicon – a list of words that are allowed to occur in a document. This forms the third and final post-processing stage, in which the extracted characters and words are compared against a dictionary or glossary of contract-related words.

Benefits of Automation in Contract Management

To reap positive results, we recommend that organizations prioritize the following:

- **Faster search and retrieval:** Quick access to critical dates, obligations and key terms, along with the ability to seamlessly find and view current contracts, amendments, history and correspondence.

- **Risk mitigation:** Clear visibility into all contract critical dates, obligations, SLAs and penalties, key financials, warranties and insurance, milestones and deliverables, providing enterprises with improved contract compliance.

- **Contract performance:** Better enforcement of contractual obligations, preventing potential financial leakage or opportunity cost in terms of terminations, renewals and other options.

- **Automated invoice generation and reconciliation:** Seamless downstream integration between the e-contracts system and the enterprise's invoice-generation application, enabling a trickle-down benefit through automated generation and reconciliation of invoices vis-à-vis contracts.

- **Relationship management:** Improved development and maintenance of supplier, customer and partner relationships through better contract performance.

- **Reporting and analytics:** The ability to understand total contract commitments and liabilities, options for renewal, price variations, etc., through "what-if" analysis.

Looking Forward

Businesses across the globe will continue to be built and run on contracts, whether to establish new relationships or enhance existing ones with suppliers, customers, partners and employees. OCR technologies and IPA are rapidly becoming mainstream solutions, with well-demonstrated benefits and return on investment within a year or two, depending on contract size and volume in the enterprise.

To successfully leverage these automation solutions and derive value from them, organizations need to:

- Ensure buy-in at all levels to digitize all contract documents.

- Create an efficient metadata-driven structure to manage contracts.

- Set key performance indicators to efficiently measure value from increased productivity and reduced costs through fewer reconciliations.

Footnotes

[1] "2015 State of Contract Management," SpringCM, 2015, https://go.springcm.com/research-report-state-of-contract-management-lp.

[2] "The Ultimate Contract Management Software Beginner's Guide," Selectica, October 2014, http://www.selectica.com/resources/guide/contract-management-guide.

[3] "Gaining More Control Over Sales Contracts Is Key to Process Efficiency and Customer Renewals, Aberdeen Says," PR Newswire, May 3, 2015, http://www.prnewswire.co.uk/news-releases/gaining-more-control-over-sales-contracts-is-key-to-process-efficiency-and-customer-renewals-new-aberdeen-report-says-155265995.html.

[4] Dan Primack, "2014 Was a Huge Year for M&A and Private Equity," *Fortune*, Jan. 5, 2015, http://fortune.com/2015/01/05/2014-was-a-huge-year-for-ma-and-private-equity/.

[5] Berwin, Leighton Paisner Web site, http://www.blplaw.com.

[6] "The Robot and I: How New Digital Technologies Are Making Smart People and Businesses Smarter by Automating Rote Work," Cognizant Technology Solutions, January 2015, http://www.cognizant.com/InsightsWhitepapers/the-robot-and-I-how-new-digital-technologies-are-making-smart-people-and-businesses-smarter-codex1193.pdf.

About the Author

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