Workflow and content automation (WCA) is becoming the de facto way to automate business processes that involve documents. WCA overlaps with robotic process automation (RPA) but it focuses on the machine creation and routing of documents. This shift to the automation of content represents a change in how documents will be produced. Human labor will be augmented by digital labor. We evaluate twelve key providers that are leading the charge in the WCA market.

Prediction: By YE 2022, WCA providers will offer a document bot to assist users with the automatic generation of content (70% probability).

Workflow and content automation (WCA) has evolved as a go-to category that allows enterprises to automate the creation and routing of content and eliminate the old manual processes that slow down work productivity and the time it takes to close a business transaction. WCA platforms can automate workflows and produce intelligent documents with valuable process analytics that make businesses more productive and intelligent. WCA solutions accelerate the rate at which information flows between enterprises, people, and important business systems to shorten process cycle times and increase accuracy. This research note overviews the WCA market and evaluates twelve major providers.
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Introduction

The digital workplace is changing and the paper era of manual document creation is winding down. Automating content-based processes is a new race and with AI, there is the opportunity to do it more intelligently.

WCA solutions accelerate the rate at which information flows between enterprises, people, and important business systems by automating workflows and producing intelligent documents with valuable process analytics, which results in shortened process cycle times and increased accuracy. The WCA market is not standing still and while the focus has been on automating content, we now see the emergence of automating the entire content process, including the workflows associated with specific documents.

WCA—which emerged out of the digital transaction management (DTM) market, the customer communications management (CCM) market, and workflow—experienced growth in 2019 but it also saw consolidation. This research note provides a guide to the WCA market and evaluates twelve major providers.

Digital Transformation Demands New Content Capabilities

The focus on digital transformation is on innovation through new business application offerings. In industries such as financial services, healthcare, and government, there is an expectation of improved customer service and enterprises have no choice but to deliver. There is a demand for leveraging modern content platforms that can perform at higher levels of scalability and integration, and this means that a new class of providers has emerged.

The cloud focus has changed to multi-cloud. Enterprises often still keep mission critical content processes in a private cloud, but the focus is now on containerization. While public cloud is an option, multi-cloud gives enterprises data center choices. Choosing between types of cloud is a deployment choice, and there are more options today to meet the needs of global enterprises. That said, the need for innovation may impact the cloud decision as features are being rolled out faster with content SaaS offerings than by traditional on-premise offerings.

Over the last several years, shifts in content types and the need to expedite enterprise evolution towards becoming fully digital have created changes in the requirements for managing content. While once subtle, these shifts have become far more noticeable today.

Automating Content Is Key to Transformation

Enterprise content is both user- and process-facing. Simplified accessibility for users is key, but as this market matures, the need to make content accessible within applications is critical...
to business transformation. Enterprise content is primarily focused on critical content processes and will continue to hone this focus.

Going fully digital requires that all business processes eventually be automated; choosing which ones to automate first is part of the challenge. Enterprises should first look at the processes that have the greatest effect on business. Since business documents and contracts—and their related workflow and processes—can have the largest impact on speeding up time to revenue and outcomes, they should be at the top of this list. As a result, automating the enterprise often starts with content-related processes, and this is achieved through WCA.

**WCA Goes Mainstream**

WCA has evolved from basic document generation to become a content factory for producing content in an automated fashion. The need to generate business documents isn’t going away and conducting business in a more automated and seamless fashion means that automating content and the associated content processes is a must to maintain a competitive advantage. Many enterprises that started with basic document generation on either a batch or real-time approach now need to look further at the lifecycle and identify ways to automate the entire process. All of the current tools need to be looked at, as well as the amount of time people spend manually tweaking documents.

Aragon believes that WCA is poised to be a key catalyst for document automation, which, in terms of digital transaction management and digital business, represents a key component of a digital continuum. WCA will consolidate the following:

- Forms software
- Workflow software
- Document generation or customer communication management (CCM)

**Powering Up Artificial Intelligence with Intelligent Content Analytics**

Artificial intelligence is one of the hottest topics today when it comes to data. With the advent of intelligent content analytics, AI can now be applied to content in ways that were not possible in the past. ICA represents the ability to expose the information held inside documents and assist the enterprise in making faster and more informed decisions.

Content analytics refers to the use of analytics to derive insights from content where the text or a higher-level abstraction of meaning—called a concept—has been organized in a model that can be mechanically processed. Content analytics generally includes, but
provides more value than, simple text analytics, because content analytics can help with predictions and analysis based on these higher-level concepts.

\[\text{Figure 1: Intelligent content analytics is a best-of-breed set of offerings that enterprise content platform providers are starting to embrace.}\]

The areas where ICA is making a difference touches on documents, images, and video:

**Documents**—by using ML algorithms, document analytics gives enterprises the ability to understand what is in a document; for example, revenue risk and revenue opportunities can be identified. There is also a significant compliance risk (when you consider GDPR, LIBOR, and other regulatory frameworks), so we recommend ensuring that the vendors you evaluate have taken this into consideration. There are many ways to use ML to understand the contents of a document. In some cases, a content assistant may assist a user in locating and analyzing a set of documents (see page 5).

**Images**—by being able to process images automatically, accident scenes, building inspections, and other image types can be processed faster by a computer versus the extended times required by humans. For areas such as insurance and real estate, inspections and claims can be sped up significantly by adding image analytics to a business process.

**Video**—locating a scene in a video, and identifying people and objects, represents opportunities to accelerate business outcomes or reduce business risk.
Today, many enterprise content platform providers are recognizing the need to unleash the untapped data inside of content repositories.

**The Rise of and Document Assistants and Content Process Bots**

Chatbots are giving way to digital assistants, and with the rise of content analytics as a core part of enterprise content platform offerings, Aragon is predicting that some providers will offer what we call a ‘content assistant’ by end of year 2020.

Conversational AI is here to stay and with some work, a content assistant can be constructed that can chat with a human and perform tasks such as locate a document—just by asking a question. Aragon feels that with conversational AI, WCA providers will be able to provide an assistant to help with the task of generating a document or in some cases, filling out a form.

While interview assistants are becoming more common, Aragon feels that a document assistant will help a business user with more of their document creation needs.

**Prediction:** By YE 2022, WCA providers will offer a document bot to assist users with the automatic generation of content (70% probability).

![Figure 2: Chatbots and digital assistants will help people find and process content.](image-url)

**Market Overview**

Today, becoming a digital enterprise offers many competitive advantages, but for many enterprises, the major roadblock to digital transformation is paper and the processes associated with it. Many companies still rely on unwieldy enterprise software applications that are difficult to configure, maintain, and update as business processes evolve. Often,
customer-focused processes are the ones that are content intensive and often not as automated. This results in organizations lacking the ability to quickly execute and react in real-time. To become agile, customer and employee journeys need to be automated. The analog forms process needs to be replaced and WCA offerings are poised to do just that.

WCA combines sophisticated workflow capabilities with automated document generation and involves a number of key departures from a traditional business process management (BPM) discipline:

- WCA provides document generation: both real-time (interactive) and batch. Rules and AI will make documents more tailored.
- WCA can deal with both structured and unstructured content.
- It expects solutions to continually evolve over multiple iterations, and the tools are designed to embrace this reality.
- It’s low code, thus reducing the work of both the designer/developer and the participants.
- It’s mobile and multi-channel enabled, hooking into email, instant messaging, texting, social media channels, Internet of Things (IoT) devices, and existing websites. A new app for every new solution is not practical.
- It calls on features like digital signatures, faxes, electronic forms, mobile apps, API gateways, etc., as needed. Unlike pure integration platforms, WCA is capable of significantly more elaborate process logic and effectively assigning tasks to software.

With these combined capabilities, WCA opens up the possibilities for automating content-centric processes that require human interaction to conduct business. Increasingly, Aragon feels that more content processes will become fully automated and not require human intervention. WCA also enables dynamic engagement between internal and external constituents, a key tenet of digital transformation.
The race to the digital workplace is about eliminating analog processes. WCA providers use cloud-based hybrid cloud and private cloud software and services to manage a wide range of document automation processes involving people, documents, data, and transactions that start inside the enterprise and often end up with customers and partners. As more processes move to the digital domain, we will see a reduction in the use of people to complete those processes. Increasingly, WCA will be used to automatically render and route content based on the decision of a person, or a condition that is part of business processes or digital customer journeys. This represents the true focus of content automation—in many cases today it is aspirational, but over the next five years we expect this goal to be achieved.

Managing Content Is Not Enough: The Need to Automate

WCA involves complex document processes including, but not limited to, document assembly, routing, integration into other applications, and workflow both upstream and downstream from the decision, approval, or signature. WCA has been focused on the early stages of content creation, but we are also seeing more automation coming into the review part of the document lifecycle. Firms like Conga are helping to drive this feature set.
Automating Content-Centric Customer Journeys

Aragon feels that we are leaving the content management area, which has been a significant focus over the last twenty-five years. In many cases, it was because the agreement was completed in paper format and then had to be imaged and stored.

The reality is that paper processes are slowing down the enterprise and making the business less competitive. While senior executives understand this, sometimes it is only after an incident, like losing a major customer, that firms react. CEOs and Chief Digital Officers (CDOs) are the change agents for their organizations—the challenge is prioritizing paper-based processes and making them more automated to eliminate manual steps and the time involved with those steps.

Conducting a customer journey mapping (CJM) exercise can reveal where the analog processes are slowing down a transaction. By reviewing the journeys of both customers and employee-based document processes, a set of goals can be established to make the journey digital and then later, make it fully automated.

Today, many WCA providers are recognizing the need to be able to unleash the dark data inside documents and forms. Adobe, Conga, DocuSign, HelloSign, Nintex, Smart, and others are formulating their offerings to unleash this content.

**Prediction:** By YE 2020, 65% of enterprises will have rearchitected their document processes with a focus on automated creation and routing.

The Key Benefits of WCA

**Faster Digital Transactions**

Aragon estimates that on the creation process, hours are often saved when comparing WCA to traditional manual creation. For example, creating an automated proposal for a client can be done in fifteen minutes with WCA rather than the two hours it would take to do it manually. This saves significant time.

In a sales organization, the reduction of time it takes to create client-facing documents can have a substantial impact on results, as the time spent creating proposals and contracts can be reallocated to time spent with customers and prospects.
Faster Time to Revenue

Enterprises are looking for any way to gain a competitive advantage. The time to complete a content transaction, along with the need to shorten the account receivables starts with a faster content process. WCA becomes a catalyst to shortening the time to revenue.

Reduced Errors and Human Oversight

It cannot be stated enough that errors in documents slow down the review cycle. WCA solutions can automatically pull the relevant and current information from other systems, such as CRM or ERP, and enter it into the document.

Reductions in errors means that in many cases, a document can be created and sent for signature without the need for a human to review.

Creating a WCA and DTM Center of Excellence

Today, the reality is that there are providers who generate large sums of revenue from traditional imaging because there is so much paper. Keeping document processes fully digital is part of the challenge in an overall digital transformation approach. Shifting to a new era that is not dependent on manual paper or forms process means a new structure is needed for both IT and the business.

While some enterprises have long-standing teams focused on content management and content compliance, Aragon is suggesting that it is time to create a ‘center of excellence’ around content automation and digital transaction management—also referred to as the ‘center of excellence for content automation.’ The center of excellence should be organized to assist business units with their document-centric customer journeys.

Some of the work should be around consolidating WCA platforms, educating users, and prioritizing projects. Enterprises should build the center of excellence using both business and IT professionals.

Prediction: By YE 2021, 50% of enterprises will reorganize existing content management teams to focus on content automation and build a center of excellence (60% probability).
The Aragon Research Tech Spectrum Overview

The Aragon Research Tech Spectrum is our newest market evaluation tool that graphically represents analysis of both emerging and mature markets and the vendors that participate in them. We use a rigorous analysis of each vendor using two dimensions that enable comparative evaluation of the participants in a given market.

The Tech Spectrum looks at a focused set of criteria that helps enterprise planners understand and navigate the market of technology provider options.

The Aragon Research Tech Spectrum for Workflow and Content Automation is segmented into three sectors, representing high and low on both the product/service and performance dimensions. Vendors fit into one of the following sectors:

**Leaders**

Leaders are the providers that have comprehensive strategies and products/services that align with industry direction and market demand, and that effectively perform against that strategic backdrop. Leaders help to drive a market and, in a majority of cases, have a vision for the future.

**Contenders**

Contenders are those providers with strong performance, but with more limited or less complete strategies. Their performance positions them well to challenge for leadership by expanding their strategic focus.

**Promising**

Providers are promising and have strong strategic understanding and objectives but have yet to perform effectively across all elements of that strategy. This includes breakout or emerging players that may be focusing on specific capabilities.

**Dimensions of Analysis**

The following parameters are tracked in this analysis:

*Performance* represents a vendor’s effectiveness in executing its defined strategy. This includes selling and supporting the defined product offering or service. The performance evaluation includes:

- **Awareness**: Market awareness of the firm and its product.
• **Customer experience**: Feedback on the product, installs, upgrades, and overall satisfaction.
• **Viability**: Financial viability of the provider as measured by financial statements.
• **Pricing and packaging**: Is the offering priced and packaged competitively?
• **Product**: The mix of features tied to the frequency and quality of releases and updates.
• **R&D**: Investment in research and development as evidenced by overall architecture.

**Strategy** reflects the degree to which a vendor has the market understanding and strategic intent that are at the forefront of market direction. That includes providing the capabilities that customers want in the current offering and recognizing where the market is heading. The strategy evaluation includes:

- Product
- Product strategy
- Market understanding and how well product roadmaps reflect that understanding
- Marketing
- Management team, including time in the job and understanding of the market

**Inclusion and Exclusion Criteria**

*The Aragon Research Tech Spectrum for Workflow and Content Automation, 2020* will help clients differentiate the many vendors who offer WCA to enable enterprises to manage their processes, applications, and transactions in an all-digital fashion.

The inclusion criteria for this Aragon Research Tech Spectrum are:

- **Revenue**: A minimum of $4 million in primary revenue for workflow and content automation, or a minimum of $10 million in revenue in a related market (ECM, CCM, workflow, or portal/UX software).
- **Shipping product**: Product must be announced and available with 60% or more of the key capabilities listed above in their native product offering.

Aragon Research evaluates markets and the major technology providers that participate in those markets. Aragon makes the determination about including vendors in our Aragon Research Tech Spectrums with or without their participation in the Aragon Research Tech Spectrum process.
The Aragon Research Tech Spectrum™ for Workflow and Content Automation, 2020

(As of December 17, 2019)

Figure 4: The Aragon Research Tech Spectrum™ for Workflow and Content Automation, 2020.
Adobe has continued to push the envelope with Adobe Experience Manager Forms and Document Cloud business offerings. In 2019, Adobe updated its entire Adobe Experience Manager platform to enable smoother customer experiences by leveraging advanced content analytics powered by Adobe Sensei (Adobe’s AI and machine learning platform). Its Automated Forms Conversion feature supports batch conversion of PDF or XDP forms into mobile-friendly adaptive forms to reduce manual effort and drive digital transformation efficiency at scale. Adobe continues to lead with its PDF and Adaptive Forms capabilities that can be found in multiple product offerings, including Adobe Experience Manager Forms and Adobe Document Cloud. Adobe partners with Microsoft, and has PDF and signing capabilities for Office and Microsoft Dynamics.

Adobe has a very large install base that uses Adobe Experience Manager Forms to automate complex document-based processes. It has also started to focus on migrating legacy batch CCM workflows to its platform, given the scalability it provides. With the strength of its traditional PDF-based forms business, and its web and mobile responsive forms and documents capabilities, Adobe is well-positioned to take on a number of WCA initiatives. Its strengths in increasing efficiency and digital experiences in paper-intensive industries, including financial services, government, and healthcare, continue to allow Adobe to do well.

**Strengths**
- Brand and financial stability
- Native eSignature support
- Forms capabilities
- Partner network
- Broad set of digitization components supports enrollment, onboarding, and ongoing communications

**Challenges**
- Balancing overlapping PDF form capabilities between Adobe Experience, Manager Forms, and Document Cloud
Conga

Conga has been pushing the envelope in WCA and expanding its product portfolio. Its document generation is well known in the Salesforce AppExchange. Its Digital Document Transformation Suite has been gaining traction and has a record number of users. In 2019, Conga added a new offering—Conga AI Analyze—which makes its platform AI-powered to provide content analytics. AI Analyze can also help to streamline workflows.

Conga also offers eSignature capabilities that round out its offerings to be a full DTM platform. With significant investments of over U.S. $100 million from Insight Ventures, Conga has made acquisitions, such as Octiv, and has also developed new product capabilities, such as eSignature, which it targets at the mid-market and the enterprise. It now offers contract lifecycle management and has added workflow features. Conga continues to leverage the Salesforce AppExchange, which has contributed to its growth.

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<tr>
<th>Strengths</th>
<th>Challenges</th>
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<tr>
<td>Salesforce integration</td>
<td>• Awareness outside of Salesforce Ecosystem</td>
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<tr>
<td>Document generation</td>
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<td>Contract lifecycle management</td>
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<td>Analytics</td>
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<td>Ease of use</td>
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HelloSign

In 2019 HelloSign was acquired by Dropbox for $230 Million. Part of the attractiveness of HelloSign is its HelloWorks WCA offering. HelloWorks is a full WCA product that automates document-based workflows. In 2019, its interface was redesigned to provide customers with an extremely intuitive and seamless product onboarding experience. Now that HelloSign is part of Dropbox, the combined entity is beginning to rollout HelloSign as a complementary solution with Dropbox plans.

HelloWorks is also a strong addition to the growing Dropbox platform, which was recently enhanced with the announcement of Dropbox Spaces. As HelloSign becomes more integrated into Dropbox, it makes Dropbox itself more of a complete document platform. HelloSign continues to be a preferred option in App Stores, such as Salesforce AppExchange and Google G Suite Marketplace. It has also leveraged its easy-to-integrate eSignature API with several new integrations, which include Oracle and Salesforce. Finally, HelloSign continues to offer HelloFax, which serves as an excellent on-ramp for digital transaction management.

**Strengths**

- Ease of use
- Dropbox Integration
- Google G Suite integration
- Mobile forms onboarding support
- Salesforce integration
- Oracle integration, APIs, and integration

**Challenges**

- Becoming a full part of the Dropbox offering
Nintex

Nintex has continued to extend its pioneering work in workflow and content automation. In 2018, the company expanded its executive team, adding the former CMO of DocuSign, Dustin Grosse, to its ranks. Nintex has had strong organic growth along with acquisitions such as Drawloop in 2015, Promapp in 2018, and most recently, a robotic process automation (RPA) vendor in 2019, which have allowed the company to increase its growth rate and continue to innovate its WCA platform. Its platform has led the way with a no- to low-code approach that allows business ops and analysts to automate complete document processes. In 2019, Nintex announced an automated way to generate workflows with its Nintex Workflow Generator capability that today is bundled with its Nintex Promapp offering.

The new Workflow generator now enables the Nintex platform to take business process management a step further by automatically generating advanced workflows. This complements the document generation, mobile apps, modern forms, and process intelligence capabilities that Nintex offers into a cloud solution that requires no coding. Nintex also offers advanced content analytics that enables enterprises to understand what is happening in their content processes in real-time. This enables a complete end-to-end routing of data and content, with minimal human intervention. Nintex offers integration with Microsoft, Salesforce, Adobe, and more. It has innovated in WCA and advanced DTM, including adding intelligent process automation (IPA) capabilities to its product.

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<th>Strengths</th>
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<td>• Ease of use</td>
<td>• Market awareness outside of Microsoft ecosystem</td>
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<td>• Advanced workflow and content automation</td>
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<td>• No- to low-code approach</td>
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<td>• Visual business process management</td>
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<td>• Robotic process automation with fast time to value</td>
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<td>• Automated document generation</td>
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<td>• Automated workflow generation</td>
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<td>• Microsoft and Salesforce integrations</td>
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Smart Communications

Smart Communications acquired WCA provider Intelledox in July 2019 for an undisclosed price. The combined entity offers both WCA as well as full enterprise-class CCM capabilities that include batch, interactive, and on-demand CCM deployed in a full, multi-tenant cloud. Intelledox pioneered its document journey type of approach that helps customers deal with complex, customer-focused content applications. The Intelledox Platform features adaptive interviews that collect information—and connect to third-party systems of record—and then use new and existing data to automatically generate personalized digital content and documents on-demand via its intuitive user experience.

Smart Communications is known for its long-time CCM capabilities and its new Conversation Cloud, a framework that helps enterprises easily integrate Smart Communications’ solutions with CX technologies for increased efficiency and more complete customer views. Smart Communications has its own data centers and is also leveraging Amazon AWS. Smart Communications has also been innovating and has shown previews of chatbots and conversational AI interfaces for future document-based assistants. The combination of Smart Communications and Intelledox provides enterprises with a set of capabilities to meet most of their content automation needs.

**Strengths**
- Journey-based document creation and workflow
- Content automation
- Ease of use
- Intelligent user experiences
- Journey analytics
- Pre-built Connectors for Journey Automation

**Challenges**
- Partners for eSignature
Contenders

DocuSign

Since going public in April 2018, DocuSign has continued to demonstrate growth in revenue, customer count, and the breadth of its product portfolio. It acquired CLM provider SpringCM in September 2018, invested in AI partner Seal Software in March 2019, and then launched the DocuSign Agreement Cloud soon after—its suite of over 12 products and 350 partner integrations that help companies connect and automate the way they prepare, sign, act-on, and manage agreements.

Following the SpringCM acquisition and integration of its functionality, DocuSign now offers DocuSign Gen, which offers a document-generation experience from within Salesforce, and DocuSign Negotiate, which layers on the ability to redline and track documents as part of sales negotiation. It also recently launched DocuSign CLM, the enterprise-class offering which builds on Gen and Negotiate functionality with a workflow engine, Word-accessible clause library, and centralized searchable repository. DocuSign has also grown its core eSignature offering and launched complementary offerings for identity verification and click-wrap agreements. It has continued to partner with solution providers like Seal Software, Intelledox, eOriginal, LoneWolf, and others. It has also expanded its channel program to include systems integrators that have, in turn, created their own agreement cloud practices.

Strengths

• DTM platform
• Integrated WCA offering
• Brand
• Mobile (iOS, Android, Windows, in-person/offline)
• Security
• APIs and developer community focus

Challenges

• Awareness of offerings within the workflow and content automation buyer audience
Kofax

For the past decade, Kofax has been innovating by integrating cognitive capture with automation. Kofax’s focus is on making customer processes more effective, fast, and accurate. Kofax leads with its Intelligent Automation Platform, eliminating many of the manual touchpoints that hinder data and content-driven processes. Kofax offers a number of smart process capabilities in areas such as claims, onboarding, mortgage, trading, invoice processing, and print management.

Kofax is also well-known for capabilities in document workflow, imaging, intelligent capture, and business process management (BPM). The Kofax backend analytics and adapter set are significant strengths, and the company’s Intelligent Automation platform provides a broad digital transformation product set. Kofax offers a number of smart process capabilities in areas such as claims, onboarding, mortgage, and trading. While Kofax is now squarely focused on RPA, it continues to offer a number of solutions for content automation.

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<th>Strengths</th>
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<td>Brand</td>
<td>Balancing focus on RPA vs. WCA</td>
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<td>Multichannel capture</td>
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<td>BPM/workflow</td>
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<td>RPA</td>
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<td>Mobile SDK</td>
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Mitratech

Mitratech, based in Austin, announced a new CEO Mike Williams and the formation of a new business unit to focus on workflow automation. While Mitratech remains focused on software solutions for legal operations, it appears to be adding more emphasis to workflow and content automation with the new business unit, which will leverage its TAP Workflow Automation offering to expand into additional markets. TAP Workflow Automation provides solutions spanning multiple industries, including specialty apps designed for legal, compliance, human resources, procurement, and finance. In 2019, Mitratech made more of its Workflow templates available to customers in the form of its Gold Standard downloadable templates.

Mitratech has continued to expand the TAP platform with new features and modules, including advanced document generation capabilities, collaboration capabilities, and dynamic, multi-language support for intake forms. Mitratech has encouraged its customers to share best practices via its TAP Co-Innovation Center. TAP’s API integration enables firms to do fast validation of things such as customer addresses by leveraging Google Maps. TAP Workflow Automation offers integrations with Microsoft, Salesforce, and Mitratech’s TeamConnect Enterprise Legal Management platform.

- **Strengths**
  - Workflow and content automation
  - Drag-and-drop design tools
  - APIs and integrations
  - Ease of use
  - Custom interfaces
  - Security

- **Challenges**
  - Balancing focus on legal market vs. other industries
OpenText

OpenText continues to offer its flagship enterprise content management (ECM) offerings as well as its CCM brands Exstream and StreamServe—which is now called Communications Center Enterprise. Exstream 16 is the most recent offering and it serves a large install base that focuses on batch document generation. It now has over 29 different brands and continues to be on the lookout for more acquisitions.

StreamServe has been known for its focus on interactive capabilities. Exstream Content Author also provides an easy-to-use interface that allows non-IT staff to make changes to content. OpenText as a content management company sees great potential in connecting content management with message creation and delivery. To further drive this vision, OpenText is actively creating (REST) APIs across all of its products and has developed a Common Asset Service (CAS) for CCM, which manages and shares design assets across Exstream and other OpenText products, such as Media Manager and Content Server. OpenText focuses its CCM efforts on a number of industries including financial services, healthcare, public sector, and utilities.

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<th>Strengths</th>
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<td>Brand recognition</td>
<td>Focus on batch WCA</td>
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<td>Install base</td>
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<td>Workflow and integration with business applications</td>
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<td>Content analytics</td>
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Quark Software, Inc.

Quark, based in Denver, Colorado, named a new CEO, Chris Hickey, in January 2019. Quark focuses on automating the publishing and workflow process for all types of complex documents that also need to offer strong aesthetic appeal. Quark can also render documents in multiple formats to meet the delivery needs in today’s multi-device world. Quark also offers Docurated, which is helping sales teams deliver rich content to prospects and customers.

Quark allows users to use Microsoft Word but in the background it leverages XML, which means that data can be leveraged from other sources. These XML reusable content modules save time when it comes to creating and updating complex documents in industries such as life sciences and aerospace—where procedure-based documents need to be updated regularly. While others have focused on generating more basic documents, Quark is unique in its approach to automating highly complex documents with unique formatting needs.

**Strengths**
- Complex publishing
- Content reuse capabilities
- Brand awareness
- Ability to create creative content

**Challenges**
- Balancing focus on a range of use cases and industry-specific solutions
Upland

Upland, based in Austin and led by CEO Jack McDonald, focuses on sales and proposal content management. It has deep expertise on automating Request for Proposals (RFPs). In 2019, Upland acquired Altify, a customer revenue optimization provider that takes sales methodologies and digitizes them. Upland also offers a collaborative workspace that allows teams to collaboratively create strategic documents across the enterprise. This work hub approach is a market trend that is occurring in sales as well as in horizontal markets.

Upland also enables sales teams to create sales playbooks, which gives sales teams more guided selling capabilities than other providers. Upland Qvidian integrates with Microsoft Office 365, which is critical for complex RFP creation. Upland analytics provides insights into current content trends, as well as real-time dashboards and scheduled reports. With more integrations with Upland’s robust workflow capabilities, we see more expansion opportunities for the combined Upland Qvidian.

**Strengths**

- Ease of use
- RFP automation
- Sales Playbooks
- Integrations
- Analytics

**Challenges**

- Awareness outside of sales
- Document generation
Promising

PandaDoc

PandaDoc offers an easy-to-use workflow and content automation platform. It received $15M in funding in 2017. Its main focus is for sales content and proposals. In addition to WCA, PandaDoc also offers full DTM capabilities so that documents, once created, can be eSigned electronically. Advanced analytics allow users to know what documents are being accessed and viewed and a better understanding of their impact.

PandaDoc also offers payments, which is integrated with its documents, so that immediately after a customer signs the document, a payment can be executed. PandaDoc also integrates with a broad number of CRM offerings, including Copper, HubSpot, Pipedrive, Salesforce, and Zoho. The company is backed by HubSpot, Microsoft, and other investors.

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<tr>
<th>Strengths</th>
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<tr>
<td>• Ease of use</td>
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Aragon Advisory

- Organizations need to transition away from a focus on content management and instead transition to a focus on automating all employee- and customer-focused document journeys.
- Enterprises need to balance the short-term need to automate document generation vs. the longer term need to automate the entire content process.
- Enterprises need to ensure that WCA providers have a clear and concise product roadmap.
- Enterprises need to create a center of excellence that focuses on content automation, as well as rank and prioritize customer, employee, and partner journeys for automation.

Bottom Line

While there is growing awareness of the need to automate content, it is still not top of mind in all enterprises. Enterprises should focus on automating critical documents with the end goal of better customer journeys and faster time to outcomes. Aragon recommends creating a Center of Excellence to assist the business units by focusing on inventorying and prioritizing documents that have the biggest business impact. This approach can help to accelerate overall transformation and streamline the content-related customer and employee journeys.