This paper examines how human and machine automation can be influenced with intelligent content to advance digital workplace transformation.

The Future of Intelligent Content in the Evolving Digital Workspace

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Intelligent Content and Process Automation in the Future of Work

The future of work requires organizations to rethink the way work gets done. It is a fundamental shift in the work model to one that fosters human-machine collaboration, promotes the learning of new skills, and supports an environment unbounded by time or physical space. In the race to digitize paper processes and gain insight into unstructured content, IT has focused on automating discrete tasks to improve business operations, while daily work activities continue to be a challenge for the human worker. To remedy this situation, organizations are initiating digital transformation (DX) projects that include reengineering content strategies and work models as part of their modernization to the cloud. While the cloud inherently offers an ease of purchase, delivery, scale, and availability that both technical and business teams appreciate, IDC found that the adoption of a cloud-based content management system aided employees in processing and using content more effectively — from reducing errors and rework (14.6% of respondents) to increasing content reuse (9.4% of respondents) (see Figure 1). The largest benefit — by 40% — was the ability to improve the customer experience (20.4% of respondents) via a modern content management system.

KEY STATS

According to IDC, 44.2% of data processing activities are being handled by digital workers — artificial intelligence (AI), robotic process automation (RPA) software, and other "smart" devices — today, and 57.1% of data processing activities will be handled by digital workers in two years.

KEY TAKEAWAY

Intelligent content and automated processing are key components in the evolving digital workspace.
The next opportunity ahead for digitally disruptive organizations is to implement an agile content strategy that leverages intelligent content to guide workflow transformation and further improve customer interactions. Additionally, organizations can gain a competitive advantage by employing digital workers — artificial intelligence (AI), robotic process automation (RPA) software, and other "smart" devices — to relieve humans of the repetitive task of capturing, finding, reusing, and sharing content across the business ecosystem. The future of work relies on an advanced digital workspace to bring together intelligent content and modern low-code process tools that empower human workers to deliver high-value experiences and respond faster to market demands.

**Deriving Value with Intelligent Content Services**

According to a recent IDC survey, business leaders indicated that getting a better handle on the volume of curated and created content within the organization (30.7%) and improving decision making with better information (14.4%) were top concerns. The first task is to catalog what content is available across the organization. Only then can the next step be taken to extract value from any unstructured or structured item to improve workflows and drive insightful decisions. A digital workplace offers users better access to enriched content from across federated repositories, delivered through a streamlined, context-driven set of activities. The result is a more engaged employee who spends less time on repetitive tasks and more time on value-added objectives that drive higher productivity across both human and digital workers.
Creating Intelligent Content

By definition, intelligent content understands its context, role, and use; it adjusts dynamically based on the situation and is driven by a rules-based policy or AI decision engine. To create intelligent content during the discovery and capture process, descriptive metadata is added to the content item. Previously, this process had been performed manually, inconsistently, and with rudimentary categorization methods. Today, AI-enabled tools can enrich content with knowledge faster, with far more precision and depth than ever before. Intelligent content becomes self-aware — it knows where it exists as well as its purpose and how it flows through the organization. IDC found that 23.1% of organizations benefited from intelligent content stored in a knowledge base accessible across geographies and 35.1% of organizations improved the ease of file sharing.

Intelligent content can provide a variety of benefits, including content reuse and data decision processing. By applying automation and analytics to a legacy content repository, machines can extract value from and reactivate content in context of the business process. For example, consider an accounting workflow that uses the original purchase order (PO) parameters to match the PO with an incoming invoice. Based on context and metadata, such as the financial amounts, the policy engine can decide to automatically pay the invoice in full or generate a partial bill to be dealt with in the future.

Advanced Process Automation

Leveraging intelligent content effectively is the next step to advanced process automation. IDC estimates that by 2022, 60% of G2000 enterprises will be AI enabled, with over 50% of enterprise application workflows aided by AI to better utilize legacy content, real-time operational information, and third-party data feeds. Tools that enhance content-centric processes must be easy for business users to utilize yet powerful enough for IT/developers to extend as needed; hence the growing use of low-code visual design environments to simplify the task of developing digital capabilities connected to intelligent content. For example, business analysts can simplify cross-platform workload scheduling by defining the rules once and let the digital worker execute them infinitely, resulting in repeatable, reliable, and error-free scheduling. As nontechnical business users become more comfortable and skilled in creating advanced automation rules, the number of digital workers, including purpose-built RPA applications, deployed for daily tasks will increase. IDC found that 44.2% of data processing activities are being handled by digital workers today and that 57.1% of data processing activities will be handled by digital workers in two years (see Figure 2).
The opportunities created by an investment in process optimization reach beyond just digital workers. Organizations can gain a competitive advantage and respond faster to market changes with new tools that offer a broad range of individuals, including citizen engineers, access to build and deploy modern, content-centric applications. The low-code visual modeling and templated drag-and-drop approach expands development capacity through empowered business users; IT is more productive, development costs are reduced, and delivery of transformation initiatives is accelerated.

Unbounded Reach
The value of intelligent content and automated processes is not limited to the traditional office setting. Forward-thinking enterprises empower their mobile workforce with digital workspaces that allow them to connect globally in real time as if they were at a desk. Mobile access is part of the original work design and not a separate IT project add-on. In one case study, an insurance company created a modern mobile process for generating new insurance policies. Agents in the field add content to the policy application via their mobile device. The application verifies the agent’s identity using a thumbprint reader and then messages the applicant for policy payment details, video capture acceptance, and identity verification. The mobile application reduced identity fraud and inconsistent selling. Within six months of using the application, the company saw an increase in transaction sizes and a 50% productivity improvement.

**FIGURE 2: The Digital Workforce Is Growing**

Q. For each of the activities, what percentage is accomplished by a digital worker today and in two years?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Today</th>
<th>In Two Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasoning and Decision Making</td>
<td>12.9%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Physical Activities</td>
<td>9.3%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Evaluating Information</td>
<td>10.1%</td>
<td>31.2%</td>
</tr>
<tr>
<td>Data Processing</td>
<td>31.1%</td>
<td>48.6%</td>
</tr>
<tr>
<td>Evaluating Information</td>
<td>44.2%</td>
<td>57.1%</td>
</tr>
</tbody>
</table>

Source: IDC’s Future of Work MaturityScape Benchmark Survey, March 2019
Modernized Cloud-Based Technology

IDC estimates that by 2020, as part of adopting 3rd Platform technologies, 40% of organizations will invest in automation, orchestration, and content life-cycle management via cloud-native applications. IDC has found that organizations are motivated to re-architect and optimize content-centric workloads in the cloud and integrate with on-premises back-end systems that house the source content. In the cloud environment, the business can experiment with different options, analyze the outcomes, and adjust and scale up or deploy new variants easily without the need to build up their own infrastructure. Some cloud content deployments target sub-second response times because the organization is confident in the reliability and viability of a secure infrastructure behind the scenes.

Legacy Systems Strain Digital Workplace Transformation

Companies realize they need to transform to remain competitive but are handcuffed by outdated architectures and paper-based processes. Operations teams are challenged in connecting stacks of legacy, mainframe, or custom-built systems that house volumes of historical and critical business information. IDC found that 25.4% of organizations want to access content housed in their back-office applications, such as enterprise resource planning (ERP) or human resource management (HRM) data; however, these legacy applications often lack modern application programming interfaces (APIs) or the means to tag content as it enters the repository, making it easier to extract value later. Interconnecting the systems requires that multiple tools be stitched together in a way that limits the view of the entire process and produces a convoluted user experience.

Once the systems are connected, established companies have an opportunity to digitize their paper processes and use automation to tap into the wealth of insight hidden within their existing content stores. Unfortunately, bottlenecks arise because low-code software today is heavily weighted toward developers, or at least workers skilled with such tools, whose time is in high demand. What is missing in many content automation tools is an orchestration model that ensures business users have the capability to design and assemble the connections and conditional logic of intelligent content to propagate value throughout the business process. The ease with which digital automation can be adopted by nontechnical users will distinguish the winners from the losers in this dynamic, information-driven economy.

Considering Information-Driven Solutions from ASG Technologies

ASG’s vision of enterprise information management is to reduce the complexity of automating processes and enabling intelligent content to drive new means of engaging customers and employees. ASG Mobius Content Services provides the core repository services for federation, governance, and interoperability of business systems across mainframe, distributed, and cloud platforms to provide a single view of enterprise content. It federates content across a wide range of repositories while its policy-based decision engine provides a foundation for automated processes to apply governance and compliance rules. Mobius Content Services is architected for deployment in the cloud, on premises, or in hybrid configurations.

ASG Mobius Content Services ingests electronic information from capture tools, extracts and classifies metadata from paper documents, and integrates digital content from business systems and applications. It extends content intelligence by indexing the metadata, applying policy-based business rules for management and governance, and then storing content with associated business transactions for quick access and collaboration or for long-term archiving and retention.
ASG provides additional process automation capabilities through its ASG-Zenith digital automation platform and ASG-Studio, a visual low-code/no-code design tool. ASG-Zenith enables process applications with a set of business services for process automation, RPA, repository, policy, and presentation.

ASG-Studio is a visual design environment that enables IT professionals and business analysts to design and deploy workflows with a single model-driven object palette for creation and assembly of solutions. The process modeler is compliant with the industry standard BPMN 2.0. Business analysts can also design and build business dashboards or portals that provide visibility into data and processes across the enterprise from any device.

ASG Data Miner can surface new value in content by identifying, extracting, and indexing unstructured content from years of archived information to create insight for business analysis. Its advanced machine learning smart suggestion feature uses advanced analytical algorithms for automated data extraction. Interactive visualization reporting tools can be used to dynamically identify business trends and themes that can drive decision making.

With ASG Data Intelligence tools, data protection teams can identify and locate personally identifiable information within structured and unstructured data sources to assist with GDPR and CCPA compliance. ASG Audit & Analytics Services automates audit rules and data processing to identify and report data anomalies based on business policies and governance rules. Organizations can find and correct inaccurate and incomplete information to reduce costs and time associated with manual, repetitive data-gathering tasks. Risks associated with weak internal controls can be minimized, and compliance with regulations and quality assurance requirements can be improved.

**Challenges**

In the past, enterprise content was kept in well-defined repositories and served the needs of the applications for which it was designed and the organization responsible for it. As more products are converted from analog to digital, the amount of structured and unstructured information generated by people, processes, and things grows unbounded. The challenge is for content management systems to harness the wealth of content flowing into the organization and leverage that content, beyond its original intent, to fuel automated processes and data decision engines. To date, this has been a complicated assignment. IDC has found that IT organizations have embraced low-code software to orchestrate complex workflows that automate and simplify highly strategic processes. As low-code software moves through a next generation of ease of use, we will begin to see more adoption by nondevelopers, whether business analysts, power users, or end users who urgently need the capabilities to handle the information deluge. Until then, organizations should anticipate an investment in skilled resources when extending the tools beyond IT.

Further, early enterprise content management providers have struggled to adapt to a more agile content and process model that can scale as the volume of content grows. First-generation content platforms relied on proprietary APIs that are poorly suited to today's incremental and collaborative approach to content creation, process, and delivery. Many of the incumbent vendors are re-architecting to a cloud container methodology and exposing standard APIs to advance a more connected platform approach. This move is a positive one, but they will need to establish credibility in the cloud market with production systems that can handle high peak loads of content and user interaction with minimal latency to on-premises back-end data sources.
Conclusion

As organizations digitize and modernize their business, the massive volume of content coming in daily outpaces the ability to manually classify, describe, and organize it. Applying AI-enabled automation is key to bringing the information sprawl under control and transforming it into higher-value intelligent content infused with insight, context, and knowledge. Using advanced visual design environments, organizations can re-architect processes to insert intelligent content into the flow of work and drive better decisions digitally from anywhere. The future of work will employ digital workers to act on incoming content and utilize the decision engine for faster and more accurate processing. With time, they will evolve from executing rote automation to handling more intelligent and complex tasks. Digitally disruptive organizations will seek a cloud-based digital workplace that empowers every business user to better utilize intelligent content and advanced process automation in the future evolution of work.

About the Analyst

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Marci Maddox is Research Director for IDC’s Enterprise Content Strategies practice responsible for content workflow and technologies research — managing enterprise content, customer communications, content sharing and collaboration, esignature, forms, and capture solutions. Leveraging 15 years in content and process applications, she evaluates the future evolution that AI, mobile, and cloud bring to the content and process ecosystem.
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About ASG

Today's information economy requires organizations to accelerate the pace of innovation. While businesses digitize, regulators are setting new requirements for managing and maintaining information privacy. New easy-to-use tools are democratizing IT to speed up the assembly of process applications, reducing costs and accelerating the execution of competitive strategies.

ASG sees a huge opportunity to bring together business and robotic process automation, mobile application development and content management to form a new digital automation platform. ASG Mobius provides a foundation for managing the content lifecycle with built-in compliance capabilities. ASG-Zenith consolidates a mobile-first process automation platform, RPA, rich repository services and a portal dashboard for process automation and regulatory compliance. ASG-Studio is a single, visual design environment that assemble applications from all the ASG-Zenith services to empower the IT developers and business process owners to increases the velocity of application delivery and provide visibility into processes and information.

Learn more at www.asg.com.