2025 INDUSTRY REPORT

PEX PROCESS EXCELLENCE NETWORK

DRIVING INNOVATION WITH INTELLIGENT DOCUMENT PROCESSING

INSIDE:

- The trends shaping the intelligent document processing (IDP) landscape
- Case studies and guidance from Deutsche Post DHL Group, Manchester University NHS Foundation Trust and Ecclesia Group
- IDP success factors and challenges

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What is intelligent document processing?

Modern organizations deal with vast volumes of documents, tasked with not only storing and accessing them securely, but first and foremost using data to run particular business processes such as onboarding customers, paying invoices and processing orders. Intelligent document processing (IDP) is the automated extraction of data, converting it into structured, actionable and machine-readable information. It uses a finely tuned combination of technologies and artificial intelligence (AI) models to classify, categorize and validate extracted information with high levels of confidence and accuracy.

IDP is an evolution of traditional document scanning and digitization technology such as optical character recognition (OCR), which has been used for decades to convert paper-based text into digital data. OCR remains at the heart of modern IDP solutions, but the extraction of data and insights from documents requires a far broader spectrum of capabilities to truly understand the content of a document and extract relevant data points to pass onto downstream processes. With its capabilities to enable accelerated operations and provide valuable insights, IDP is of notable value to organizations looking to gain a competitive edge.

IDP typically operates across four functions: document ingestion, data extraction, data normalization and verification and data export. IDP lies at the core of the operational workflow of many businesses today, particularly in document-heavy sectors such as financial, legal and healthcare.

The IDP market has grown significantly in the last few years and is expected to continue to expand exponentially, with Fortune Business Insights predicting it to have a value of over US$66 billion by 2032. Automation demands, digital transformation initiatives, data accuracy, security and compliance requirements, cost reduction and improved efficiency are among a raft of attributing factors driving the current IDP landscape.

"The IDP market is expanding significantly due to the growing need for automation and digitization in various industries," Anoch Mane, research analyst at QKS Group, tells *PEX Network*. "IDP solutions are becoming an integral part of enterprises looking to optimize their document-centric workflows because they provide an efficient combination of modern technologies such as computer vision, machine learning and natural language processing (NLP)."

The IDP market is becoming increasingly relevant to customer expectations as it evolves and businesses are looking for solutions that can scale to accommodate growing document volumes, deliver reliable and precise data extraction and connect easily with their existing systems. "Furthermore, leveraging the advantages of IDP solutions and ensuring their wider adoption depends heavily on user-friendly interfaces and intuitive workflows. The evolving trends in the IDP market are addressing these user expectations, driving innovation and delivering enhanced capabilities."

"IDP is powerful, but if your processes are disorganized or inefficient, IDP can magnify these problems rather than solve them."

Jon Knisley, ABBYY

Trends shaping intelligent document processing

Several key trends are molding the modern IDP landscape, driven by the need for faster time-to-value, precision in document processing and scalable solutions that align with the broader goals of digital transformation.

Evolving AI

The AI buzz is felt across various technological and business disciplines, and IDP is no exception. Generative AI broadens what's achievable in processing complexity. It has the potential to greatly enhance document data extraction accuracy, decipher legal, technical and sophisticated text, translate content, route documents to appropriate departments, generate human-like responses and perform quality checks. There is a clear desire to use generative AI/large language models (LLM) in enterprise use cases in a reliable and compliant way. One example is retrieval augmented generation (RAG), which enables context-aware, reliable responses from general purpose-LLMs. Generative AI also continues to transform what is achievable in customer experience with its ability to deliver hyper-personalized customer service.

Conversational AI, on the other hand, focuses on assisting natural language interactions between humans and machines. IDP solutions are refining user interfaces by including conversational AI capabilities, shifting from conventional menu-driven solutions to more intuitive, conversational experiences. Users can ask queries about certain documents or make requests for specific actions with voice commands or natural language queries when interacting with IDP systems.

Agentic AI represents the next frontier for IDP by empowering systems with autonomy, intelligent decision-making and proactive capabilities. This foundational shift not only enhances the efficiency and accuracy of document processing but also positions IDP as a critical enabler of broader enterprise automation strategies in industries such as finance, healthcare and legal services.

Crucial for the successful implementation of enterprise solutions, specifically in regard to process automation and IDP, is the purpose-built AI approach. By integrating best-of-breed AI models, purpose-built AI is finely tuned to ensure accurate document processing at every stage of the pipeline, regardless of complexity, industry, application, content or language. This results in precision, efficiency and scalability while delivering reliable and contextually relevant outcomes. AI models purpose-built for specific document-centric processes, such as invoice processing or compliance checklists, offer rapid deployment and higher straight-through processing rates.

Advanced analytics

Advanced analytics has become an important trend in IDP as businesses seek more data-driven insights from their document repositories. Organizations can extract critical operational intelligence from IDP programs beyond processing rates and accuracy.

Also, augmenting IDP solutions with prescriptive analytics provides benefits such as document data analysis, pattern and trend recognition and the provision of actionable prescriptions. It can offer some advanced features such as recommendations for process optimization, risk mitigation and opportunity capture.

Trends shaping intelligent document processing

Cloud infrastructure

Cloud-based IDP offers advantages that enhance document processing capabilities compared to traditional methods. Leveraging computing power beyond in-house IT infrastructure, cloud infrastructure helps organizations navigate peak activity periods, accommodate business growth and efficiently manage document processing demands. In the modern era of remote and hybrid work, cloud-based infrastructures enable users to access documents from anywhere in the world, while the ability for multiple users to collaborate on documents in real-time enhances overall productivity and teamwork.

Low-code solutions

The rise of low- and no-code technology allows business users to test, deploy and customize models without deep technical expertise. This trend is empowering non-technical teams to take ownership of automation processes and develop IDP use cases quickly. Within a very short period of time, low-code has become the standard and it is unimaginable that not so long ago an entire team of developers and multiple months of set-up were required to get started with document processing.

Security, regulations and compliance

Modern businesses are under growing pressure to meet evolving standards, regulations and laws around the management and use of data. The days when this could be handled manually by experts are gone, and the need for intelligent, autonomous technology to ensure compliance in increasingly data-rich environments is growing all the time.

Data is becoming more and more global, creating additional risks. The process of analyzing data and identifying potential hazards is paramount, and even the smallest amount of data could lead to compliance or legal issues. Organizations are reliant on integrated, scaled tools that can work in collaboration with legal and compliance specialists to avoid the strict punitive repercussions of non-compliance, not to mention the potentially irreparable damage caused by failing to maintain strict data-focused standards.

Industry specifics

The IDP environment is experiencing an increase in industry-specific use cases and solutions as suppliers tackle the different challenges and requirements that exist across different industries. Industry-specific solutions with out-of-the-box capabilities suited to the particular needs of each sector are on the rise. This includes pre-built document taxonomies, domain-specific data models and pre-trained AI models which allow faster time-to-value and reduce the need for extensive customization efforts. Furthermore, industry-focused solutions can make use of best practices, domain experience and sector-specific regulatory knowledge to ensure more accurate and compliant document processing.

Meanwhile, use-case agnostic platforms that support industry-specific use cases out of the box are increasing. As a result, organizations can standardize all use cases on one IDP solution, while still supporting specifics and fast time-to-value.

Customer experience

Customer needs and expectations are changing IDP, with buyers and users demanding increasingly personalized, streamlined experiences. Positive customer experience ensures loyalty and supports retention while boosting brand advocacy and the bottom line. IDP is increasingly being applied to enhance multiple factors that can support and improve customer service. By analyzing customer data, IDP enables businesses to personalize their interactions, ensuring that messages resonate with individual recipients. What's more, by eliminating time-consuming tasks, companies empower their workforce to focus on more strategic and creative customer service.

IDP in action

Common IDP use cases include:

- Invoice and payment processing
- Contract management
- Customer and employee onboarding
- Compliance and regulatory reporting
- Medical records management
- Claims processing
- Customer service and support

Transforming financial services

IDP is driving innovation across the modern financial services sector. Maureen Terralheiro previously held the role of strategic operational leader and VP of client management center at one of Canada's leading, federally licensed debt solution providers. Her team oversaw the back-office operations, customer service, contact center and process improvement departments of the organization, relying heavily on documents and forms to complete tasks, Terralheiro tells *PEX Network*. "What I find most useful about IDP is that it goes beyond traditional OCR, using AI and machine learning to automate processes that require reading/creating or extracting information from documents."

IDP use cases included reducing the cycle time of tasks so that employees could focus on more value-added activities. "By implementing IDP and other automation activities, employees got capacity back for training and development." IDP is also proficient in extracting data automatically from emails and forms, eliminating unnecessary back and forth responses, improving customer SLAs and reducing errors, she adds. "IDP allowed my team to parse incoming emails, identify relevant text within the body of the email and attachments, and then extract information so that staff can action accordingly."

As for better document management generally, IDP came into its own by extracting data from documents accurately, reducing the risk of inaccuracies if the data were extracted and entered manually, allowing for faster processing that translates to quicker decision making and reduces physical storage costs through digitization, Terralheiro adds.

Ecclesia Group

With more than 2,400 employees and direct written premiums of 2.5 billion euros, the Ecclesia Group is the largest German insurance broker for companies and institutions and one of the leading in Europe. By leveraging IDP, Ecclesia streamlined its correspondence management, significantly reducing the time associated with claims processing and enabling it to focus on optimizing customer service.

Claims operations at Ecclesia were previously highly time-consuming, requiring extensive personnel involvement in collecting, reviewing, scanning and distributing both paper and digital claims documents. This made it difficult to keep up with customer expectations. Digitized documents could only be saved as image files and were not searchable, creating additional work and bottlenecks during later stages of the claims process.

Through the implementation of IDP, Ecclesia was able to reduce the amount of human labor spent on manually inputting data, freeing employees to dedicate more time to other high-value responsibilities. Features include extracting critical data such as case numbers and license plates from scanned claims documents, correctly matching documents with the related entry in the customer database and the automatic routing of documents to the appropriate claims manager for further processing.

IDP in action

Insurance is a prime example of a sector that can significantly benefit from IDP adoption, says Ekaterina 'Katie' Curry, managing director and head of operations at Millennial Specialty Insurance. Curry is also a member of the *PEX Network* Advisory Board. "Insurance, along with other regulated industries, still rely on mail. Insurance companies are required by law to send mail notifications, sometimes 40 pages long, to their customers. That is a perfect scenario for IDP. In fact, anyone who is not using IDP on printed documents is way behind the curve."

Deutsche Post DHL Group

Deutsche Post is the largest postal service provider in Europe and is part of the DHL Group, the world's leading logistics provider. Focused on growth, DHL is accelerating digital transformation in all areas of the company. Despite an automation ratio of about 90 percent, Deutsche Post DHL still struggled with 10 percent of incoming payments that required labor-intensive intervention. The challenge was the quality of data and different formats of remittance advice files beyond the capabilities of SAP modifications.

Aligning with its mission to accelerate digital transformation, DHL sought enhancements that would help it succeed in that final 10 percent of payments as well as improve quality data, handle the complexity of different formats and integrate with the organization's robotic process automation (RPA).

By integrating IDP, Deutsche Post automated the manual-intensive elements of payment management and freed up staff for higher-value interactions, streamlining the processing of remittance advices which has increased efficiencies in the "last mile" of invoice processing, resulting in significantly reduced transaction costs.

"We created an internal center of excellence and since 2017 we have completed more than 100 initiatives in that area and significantly improved the organizations," says Stefan Wenzel, VP center of digitization at Deutsche Post DHL Group. This has helped to set the foundation for using capabilities such as NLP for automating further processes across the business, resulting in a 70 percent efficiency increase, he adds.

Manchester University NHS Foundation Trust

Manchester University NHS Foundation Trust (MFT) is one of the largest acute trusts in the UK, operating 10 hospitals and employing over 20,000 staff. By ensuring smooth and reliable communication between its enterprise resource planning (ERP) system and a new IDP solution, MFT reduced invoice processing time and freed its staff to focus on other business-critical areas.

MFT processes around 275,000 invoices a year from approximately 6,000 live suppliers, with thousands of different types of invoices. MFT aimed to automate invoicing and sought an IDP solution that could:

- ✓ Automatically locate and extract relevant invoice information with a much higher degree of accuracy.
- ✓ Pass data reliably to RPA to successfully align with POs in MFT's financial system.
- ✓ Minimize coding requirements for data manipulation.
- ✓ Reduce invoice validation and training time.

IDP has helped MFT to enhance its ability to identify relevant invoice data, even in the most complex documents, with high accuracy. It has also allowed MFT to apply advanced functions across an entire set of invoices instead of repeating rules on each. Staff can now build a skill with low- and no-code, leveraging pre-built extraction models and standardized business rules. Meanwhile, the IDP learns from manual document validation, so time spent on training and validating invoices is continually reduced. The consistent and reliable results achieved with invoice automation has given MFT confidence about extending this automation to processes beyond invoices.

The adoption of IDP has resulted in an evolution of MFT's function and staff, expanding their skillset "in a way that feels a lot more stable, with a tool they know is reliable and is pushing things in the right direction," says Edd Berry, director of finance innovation at MFT.

Intelligent document processing success factors

Implementing IDP is both an art and a science, says Curry. "Patience is needed because the process is iterative, and you discover how to improve document processing only after you try it. IDP doesn't have to be expensive, and there are ways to dynamically manage your costs based on pages processed. It's amazing how much you can do with a few thousand dollars a month." That said, there can be hidden costs where crucial capabilities are extra, ultimately adding up to unexpected heights, so customers should analyze exactly what capabilities are required to achieve their expectations of success, adds Slavena Hristova, director of product marketing at ABBYY.

Clear strategic planning

Before implementing IDP in an organization, it is important to define clear objectives and goals for the project. "These objectives could be anything from reducing manual data entry and improving data accuracy to enhancing customer experience," says Mane. Also, for business leaders, it is crucial to outline a clear business case to estimate the value and potential return on investment (ROI). "This can be achieved by involving multiple stakeholders and setting clear expectations from the initial phase."

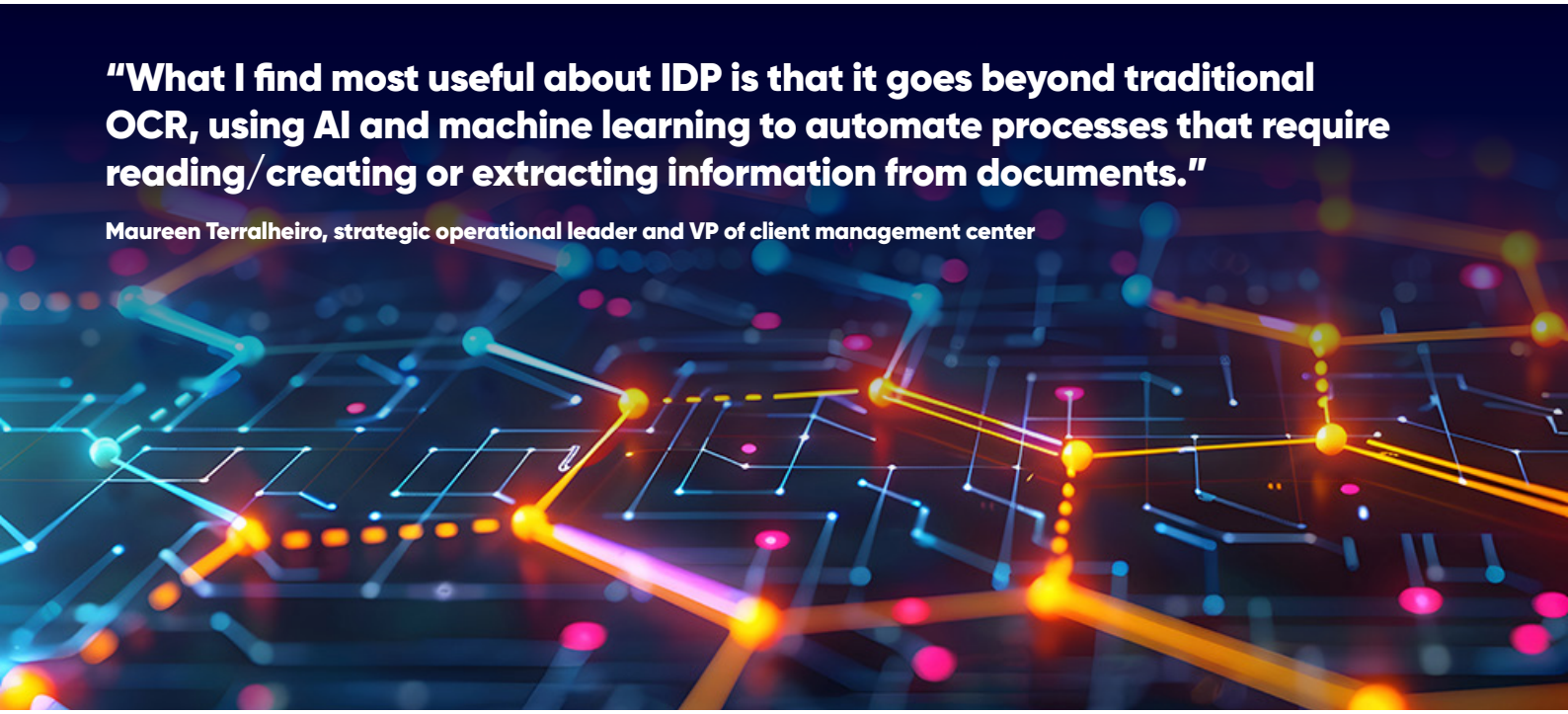
Document selection and ongoing resources

As IDP relies on machine learning algorithms, it's important to choose the right sample documents, says Terralheiro. "These samples should represent the actual data that you intend to extract. If you train the system with irrelevant or incorrect documents, then the system is unable to learn the right patterns and structures to extract the data you need from future documents." There are, of course, scenarios where it is not necessary to train the system, with pre-trained models that can extract data from certain document types automatically or be fine-tuned with customer specific documents, adds Hristova.

With IDP, ongoing resources are needed to keep extraction models up-to date and optimize straight-through processing rates, especially when processes or documents change. "This seems counterintuitive, but you need to also document what the IDP is meant to achieve, including the steps, who maintains it, who is accountable for it, when it was last reviewed, etc.," says Terralheiro.

"What I find most useful about IDP is that it goes beyond traditional OCR, using AI and machine learning to automate processes that require reading/creating or extracting information from documents."

Maureen Terralheiro, strategic operational leader and VP of client management center



Intelligent document processing success factors

Stakeholder collaboration and business workflow integration

Collaboration between technical teams, business units and external solution providers ensures IDP is designed to meet organizational goals efficiently, says Hristova. "Input from key users provides better alignment during configuration." IDP solutions are also most effective when seamlessly integrated into existing workflows and systems, like ERP or customer relationship management (CRM) software, ensuring continuity and minimal disruption, she adds.

Change management

As is the case for so many process and business improvement endeavors, change management is incredibly important for successful IDP implementation and longevity. "Let's not forget the impact on the employees who are currently doing the work of IDP," says Terralheiro. "It's important to explain to them the reason for implementing IDP and the benefits to them."

Implementing IDP in an organization often involves significant changes to existing processes, workflows and roles, concurs Mane. "Effective change management and user adoption strategies are crucial for the successful implementation of IDP." Organizations should focus on providing training, communicating the benefits clearly and involving end-users throughout the process to ensure a smooth transition, he adds.

Human-in-the-Loop

While organizations aim for complete automation and AI/machine learning have advanced significantly in document understanding and processing, it is very important to have a human expert in the loop for validation, exception handling and key decision-making, says Mane. "AI is still in a maturing phase, and human in the loop (HITL) will always provide relevant feedback which makes the model more accurate. By integrating human intelligence into IDP operations, organizations can ensure increased precision, effectively manage complex scenarios and consistently enhance their AI models."

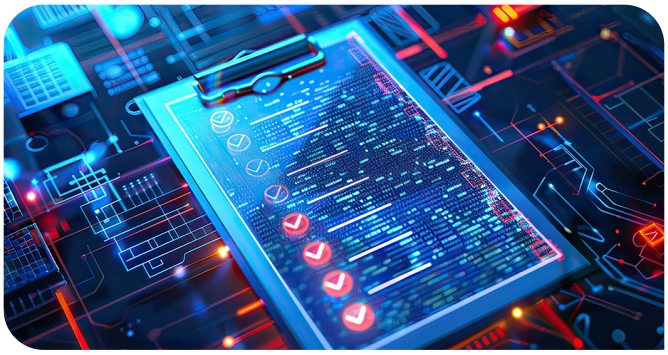
HITL deliberately incorporates human experts in the IDP process to validate, correct and refine outputs. "Provisions should be made where humans can intervene in the mechanism for critical and complex processes as and when required to ensure maximum accuracy and compliance," Mane adds. For example, in a mortgage processing scenario, the IDP solution may automatically extract data from application documents, but a human underwriter reviews and validates the extracted information before final approval.

Solution customization and specifics

IDP solutions are not one-size-fits-all. Organizations should select a solution based on their specific challenges and needs. "The success depends highly on the choice of a sustainable IDP solution that aligns with continuous improvement frameworks and can be customized to meet the organization's unique requirements such as document types, data formats and business rules," says Mane.

Curry agrees, adding that sometimes the right tool is not the most current, new shiny offering in the market. "It might be the most cost effective or the tool that requires the least change management."

Preference should be given to the solutions that offer flexibility in configuring data extraction models, validation rules and workflows to meet the organization's unique requirements, says Mane. "For example, a manufacturing company may need to customize the IDP solution to accurately extract data from engineering drawings, bills of materials and supplier specifications, which have industry-specific formats and terminology."



Enhancing IDP with process intelligence

Process intelligence is an essential component of successful IDP deployments, says Jon Knisley, process AI lead at ABBYY. "IDP is powerful, but if your processes are disorganized or inefficient, IDP can magnify these problems rather than solve them," he says. Deploying IDP without first optimizing workflows with process intelligence could lead to inefficiencies rather than improvements. "By refining processes upfront, organizations create an environment where IDP can thrive – accelerating document processing, reducing errors and unlocking valuable insights," he adds. Process intelligence provides a clear understanding of where inefficiencies lie and offers a roadmap for improvement.

Discovery

The first step in process intelligence is understanding how your current workflows operate. "Process and task mining tools can be instrumental in uncovering inefficiencies, redundancies and bottlenecks in document-heavy processes," says Knisley. For example, task mining might reveal repetitive, manual tasks in accounts payable, such as data entry, that are ideal for IDP automation. "Discovery ensures you have a comprehensive view of existing operations, paving the way for intelligent optimization."

Optimization

After mapping workflows, the next step is redesigning them to incorporate IDP effectively. "This involves removing redundant steps, automating manual tasks and integrating advanced capabilities like real-time data extraction and validation," Knisley says. For instance, an optimized loan application process could use IDP to automatically extract customer data from scanned documents, validate it against existing databases and flag discrepancies for review. "By aligning workflows to IDP's strengths, organizations ensure seamless integration and faster results."

Monitoring

Optimization is not a one-time effort – continuous monitoring is crucial to maintain and enhance the efficiency of IDP-powered processes. "Key performance indicators (KPIs) should be tracked to measure the system's output accuracy, processing time and overall impact," says Knisley says. Regular monitoring with process intelligence also allows quick identification and resolution of errors or inefficiencies in document workflows, ensuring IDP delivers consistent value.

The payoff of process-led IDP

While IDP offers impressive capabilities, it's not a silver bullet, and its success depends on the environment it's deployed in. "By prioritizing process optimization, organizations eliminate inefficiencies, mitigate risks and set clear performance standards. Streamlined workflows combined with IDP create scalable systems that improve decision-making, enhance productivity and deliver cost savings," says Knisley.

IDP is reshaping how organizations handle document-driven workflows. However, without a foundation of well-optimized processes, even the best tools will fall short of expectations. "Thoughtful preparation today will ensure smoother automation, improved accuracy and long-term success tomorrow."

Intelligent document processing challenges

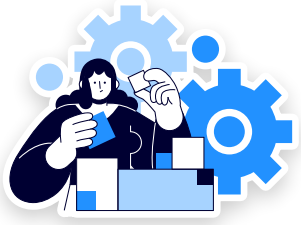
Businesses can encounter several complex challenges when adopting IDP, but these can be addressed with strategic approaches, says Hristova.

Unrealistic expectations

Organizations can be misled by overhyped IDP claims that fail to deliver beyond the proof of concept (POC) stage, Hristova says. "While initial demonstrations may showcase limited success, real-world deployment often reveals limitations in scalability, adaptability to diverse document types and accuracy in handling edge cases." To overcome this, companies must conduct thorough due diligence, seek references from existing users and evaluate the platform's performance in their specific operational environment before committing to full implementation, she adds.

IDP complexity

Implementing IDP can be more complex than organizations expect, especially due to the challenges of processing unstructured data. "Many companies mistakenly believe they can develop IDP systems internally using low-cost or open-source solutions. However, the total cost of ownership (TCO) often ends up far exceeding initial expectations," says Hristova. Additionally, transitioning to a more sophisticated solution later can add further costs. "Partnering with experienced vendors and leveraging consulting expertise ensures the solution is tailored to address unique business needs, reducing implementation risks and maximizing ROI."



Scalability and integration

Scaling and integrating IDP with existing technology and systems is not always easy. Without proper integration, businesses can face stark silos and inefficiencies, but managing large volumes of documents and seamless integration requires a significant amount of storage and established data channels. Companies need scalable solutions that can efficiently process and integrate data without disrupting existing workflows.

"IDP platforms should include APIs and connectors compatible with enterprise systems, allowing for effortless scaling and integration," says Hristova. APIs facilitate seamless data exchange between the IDP system and other software, unifying workflows and enhancing overall efficiency. Meanwhile, cloud-based IDP solutions help businesses deal with large document volumes, providing the scalability and flexibility needed to manage data effectively.

Generative AI hallucinations

Despite its vast potential (particularly in the IDP space) generative AI is still susceptible to hallucinations, which are incorrect or misleading results that AI models generate. Hallucinations that blend invented information with facts, dates and real people are extremely problematic in the context of sensitive document management. "Purpose-built AI minimizes hallucinations by grounding outputs in contextually accurate data," says Hristova. Using context-enriched data as a base ensures generative AI produces reliable and actionable insights. This expands the range of generative AI technologies while ensuring their reliability and relevance in an enterprise setting."

Conclusion

The development of IDP signifies an important shift in the way businesses handle automation and document processing. The evolution of AI and increasingly intelligent automation, strategically aligned with human oversight, signals a new era of process optimization. Prescriptive and predictive insights powered by advanced analytics offer enhanced automation and IDP workflows that ultimately result in improved productivity and operational excellence (OPEX).

Future IDP systems will have enhanced cognitive capabilities that allow them to manage more complex documents and take context-aware decisions, lowering the dependence on human interactions. However, it will remain crucial to ensure appropriate HITL strategies that add expert, human-quality oversight where needed.

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