The future of the intelligent enterprise is AI-powered Intelligent Document Processing (IDP)

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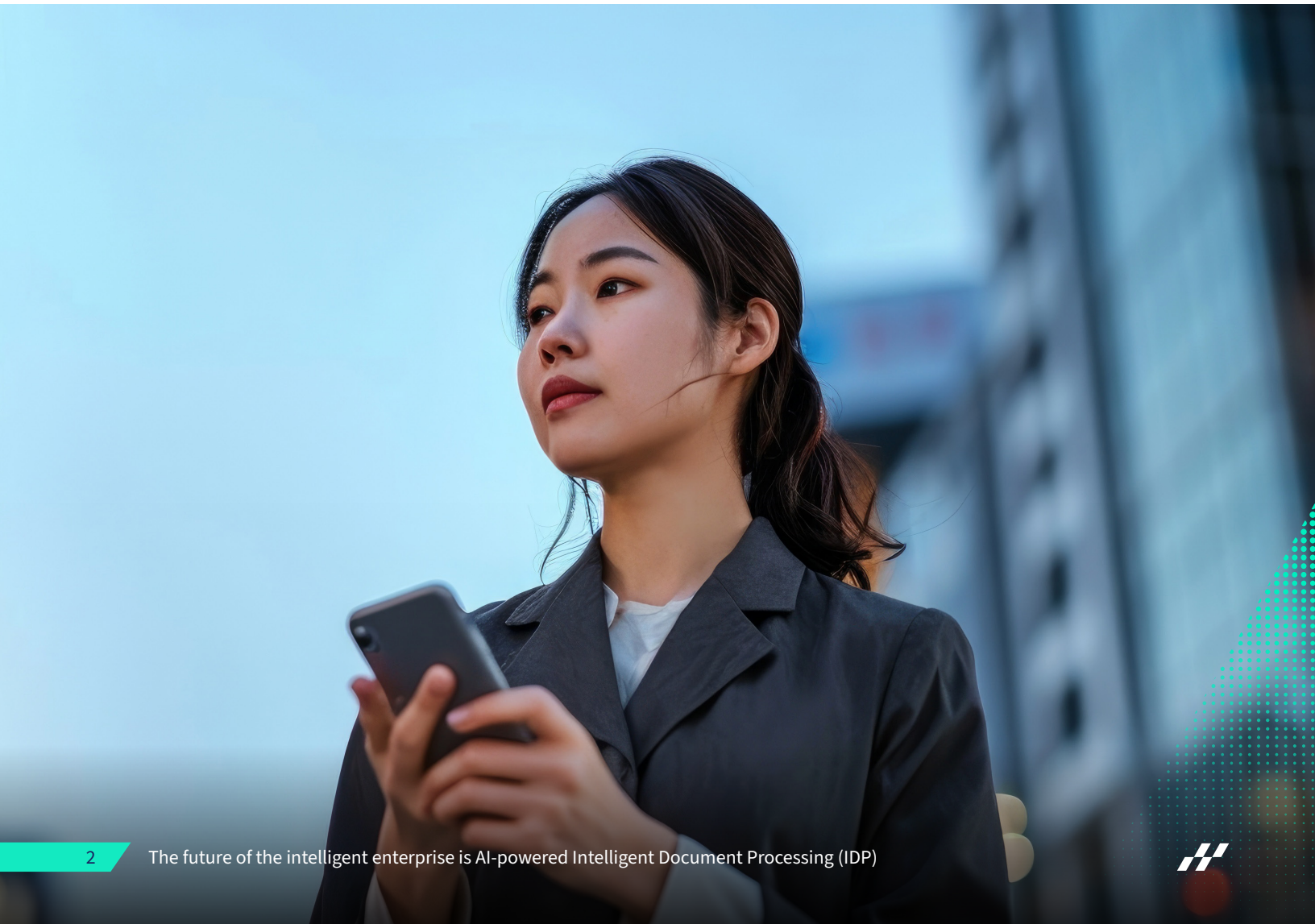
Introduction

Organizations spend huge amounts of money on manual document processing, which is tedious, time-consuming, and prone to errors. According to SAP estimates, invoices alone account for a yearly volume of 550 billion documents, with other invoice-like documents adding a further 5 to 15 times as many.

Advances in AI-driven IDP digital technology enable organizations to make this process much more efficient, reduce workforce time spent on error correction, and derive new and valuable insights from the data contained within their vast treasure troves of documents.

IDP is a cutting-edge, AI-powered digital solution that is transforming how organizations handle documents. It surpasses traditional optical character recognition (OCR) and robotic process automation (RPA) technologies by using advanced, business-focused AI models to understand the text and structures within documents. With machine learning, IDP systems 'learn' to interpret and classify data, significantly improving the accuracy and speed of document processing.

This advancement not only reduces costs and errors but also frees up human resources to focus on more strategic tasks, ultimately driving business growth and innovation. By implementing IDP, organizations can streamline operations, enhance efficiency, and improve employee and customer satisfaction.



The opportunity to achieve more and better with IDP

The majority of an organization's data is in a semistructured or unstructured format, such as manuals, image PDFs, or faxes. **Forbes** suggests that 80% of all business data is trapped in unstructured formats such as documents, emails, images, and PDFs.

Documents come in a wide variety of formats and layouts. Some contain typed text, others handwritten notes, and some feature checkboxes, tables, or signatures. Each type presents its own set of challenges.

Take an invoice, for instance, which typically includes the supplier's name, the amount due, the invoice date, the invoice number, and a purchase order number. Different suppliers might place this information in various locations, use different labels, or sometimes no labels at all.

An accounts payable clerk can identify the relevant information, despite the variation, and type them into a computer system. But this is time-consuming, tedious, and prone to error. Traditional OCR software can recognize text and numbers, but merely converts them into an unstructured jumble, which requires as much human effort to organize the data as manual entry would.

Intelligent Document Processing (IDP) offers a solution. It can extract, interpret, and enrich the content of an organization's documentation. Using AI and ML models, IDP can continuously learn and improve its accuracy and precision over time.

What is Intelligent Document Processing (IDP)?

IDP is a subset of **intelligent automation** that uses cutting-edge **artificial intelligence (AI)** to process information within unstructured and semistructured data. It extracts, reads, recognizes and understands text content before converting it into a structured, accessible format. Recent studies indicate that AI-enabled automation significantly impacts organizations, with 81% of decision-makers agreeing that it will meaningfully improve content-heavy processes over the next 2-3 years[1].

Think of IDP as a smart assistant for your business documents. It enables straight-through processing for various dynamic file formats like invoices, contracts, emails, and images at speed and scale, all without additional human input. Eliminating the need for cumbersome manual work supercharges your operational efficiency and workforce productivity.

IDP solutions are developed to mimic human cognition. They operate on advanced, continuous learning engines that get smarter over time, automatically deploying improvements to their **data capture** and extraction algorithms for precise results.

Training an IDP system using supervised learning typically takes a few months, assuming the system is given the correct examples to follow, i.e., a set of documents and their expected outputs. However, once trained, IDP systems provide a tremendous opportunity for organizations to gain data-driven insights and competitive advantage from the vast amount of information held captive within their documents.

How does intelligent document processing (IDP) work?

IDP combines automation and optical character recognition (OCR) technologies with AI capabilities like natural language processing (NLP), machine learning (ML) and deep learning to capture and contextualize data for greater accuracy.

While many of these capabilities have existed for some time now (think “intelligent capture” solutions), advances in AI and low-code technology have enabled leading software providers to bring to market, exceptional, next-generation IDP platforms.

To deliver intelligent document processing capabilities, organizations need to capture documents, then ingest, process, classify, and validate their data digitally or with a human in the loop (HITL). Finally, the data that is extracted needs to be intelligently processed and embedded into systems and applications and/or consumed by a downstream task or process.

Here's how an enterprise-grade IDP solution works:

Document preprocessing

Documents are ingested into the processing platform and prepared for analysis. They are first scanned through OCR technology and processed using capture techniques like noise reduction and deskewing to enhance data readability and quality.

Document separation

Large packets of multiple documents are split into individual documents for further processing.

Document classification

The document is then classified based on its content, format and structure. NLP algorithms, which look at data in a human-like way, are then deployed to interpret text contextually to recognize business-critical information.

Data extraction

The software then identifies and extracts the relevant data, such as names, addresses and numbers. ML continually refines the IDP software's performance over time, improving the accuracy and efficiency of the extraction process.

Data validation

Any errors in the extracted data are flagged for review. Human-in-the-loop validation resolves discrepancies while fine-tuning the model's prediction algorithms to accelerate its learning process. The final output is then integrated into databases or other downstream workflows for further analysis.

Data migration

Accurate extracted document data can then be sent to another computer application (e.g., ERP, CRM, Snowflake, or a decision model) or used in decision-making processes.

Key business benefits of an IDP solution

Future-forward organizations understand that data, when leveraged correctly, can be a foundation for success. However, for many enterprises, the torrential volume of data generated from day-to-day operations is constantly outpacing their capacity to manage it effectively. Deciphering what's noise and what's truly valuable from this sea of data can be a challenge — and here is where intelligent document processing (IDP) emerges as a lifeline. By shifting from manual document processing to an automated, AI-driven approach, IDP enables organizations to tap into their data to unlock enterprise-wide transformation.

Organizations that have adopted IDP solutions report tangible improvements in efficiencies, cost savings, customer satisfaction, and employee prioritization, including;

Reduced costs

AI-powered intelligent automation drastically reduces the need for costly manual processing. Optimizing routine back-office processes by deploying AI-based extraction techniques can save businesses 30-40% of the hours and 20% of the operational costs typically spent on document processing.

Speed up business processes

The torrential volume of data generated from day-to-day operations is constantly outpacing their capacity to manage it effectively. Fast and reliable document processing eliminates bottlenecks, therefore accelerating process cycle times.

Improved data quality leads to less process cost

Reducing errors and associated workforce intervention requirements decreases the resources required to support individual processes.

Intangible benefits

These include the predictability of both the data quality and the process throughput. The former means that not only is more data accurate the first time around, but it is less susceptible to secondary errors during the correction phase. The latter means delays that might have been caused by the bottleneck of process instances awaiting correction – producing a "lumpy" throughput as they are corrected and pushed through the process en masse – are avoided.

Reduced paper usage

Transitioning to digital documents contributes to environmental sustainability, which helps organizations meet their ESG goals.

Improved customer experience

IDP empowers your team to deliver exceptional customer experiences by drastically reducing response times to queries. The extracted data can also provide a personalized approach to addressing individual customer needs when harnessed correctly.

Key business benefits of an IDP solution - continued

Improved employee productivity

A study[2] by Forrester Consulting found that 69% of decision-makers believe it is crucial to make it easy for employees to access the content and information they need to be productive. A reduction in manual data copying and reworking results in greater productivity as employees are able to focus on much higher-value strategic initiatives.

Better data security, compliance and risk management

IDP's automated document classification capabilities strengthen compliance açnd data governance efforts by ensuring that records are managed and retained according to the appropriate regulatory policies. Confidential data can be safeguarded by reducing human touch. With robust built-in security measures like data encryption and access controls that adhere to global data privacy and security standards, the data can be further protected.

Employee buy-in for other automation initiatives

Focusing on employee empowerment through training in low-code IDP platforms and AI-powered model training enhances employees' skills and trust. This approach helps ensure that the workforce buys into an organization's automation initiatives.

IDP is a catalyst for modernization and cross-functional collaboration

IDP is a powerful catalyst for modernization. As important business information grows in volume and complexity, manual document processing is no longer a viable option; it leads to costly errors and workflow bottlenecks that can disrupt operations. Implementing IDP circumvents these challenges, enabling quick, accurate and cost-effective processes of digitalization across business functions.

Enhanced process visibility, automation and administration

Low-code interfaces make projects more affordable beyond just software costs. Workforces using low-code technology can deliver ROI faster and earlier in the project lifecycle compared to relying on expensive external developer resources.

Competitive differentiator driving innovation and growth

Deloitte found that 80% of survey respondents found that process intelligence drives better business outcomes by identifying high-value processes. Additionally, IDP serves as a competitive differentiator by transforming raw data into critical business intelligence, which fosters greater innovation and growth. Organizations that leverage these valuable data-driven insights can make rapid, strategic decisions to capitalize on emerging trends and gain a competitive advantage.

With all these strengths in mind, it's easy to understand why many organizations are beginning to prioritize IDP in their process optimization efforts.

Key business use cases for IDP

In any organization, you will find a multitude of different document types and vast swathes of people struggling to meticulously process them with precision and speed. As a result, IDP has many potential use cases.

Table 1: Most common IDP use cases in an organization

Finance and accounting	▪ Invoice processing ▪ Bank statements ▪ Collections ▪ Receipts	▪ Rebates or returns ▪ Tax forms ▪ Expense receipts
Financial services	▪ Know your customer ▪ Insurance claims ▪ Bank statements ▪ Account opening and closing	▪ Fraud detection ▪ Mortgage documents ▪ Income validation ▪ Identity checks
Human resources	▪ Employee onboarding ▪ Resume screening ▪ Identity documents ▪ Application processing	▪ Benefits management ▪ HR records ▪ References
Healthcare	▪ Patient registration ▪ Patient onboarding ▪ Patient records	▪ Processing claim related documents ▪ Invoices
Insurance	▪ Check processing ▪ Fraud detection ▪ Insurance documents ▪ Claims reports ▪ Medical records	▪ Police reports ▪ Repair estimates ▪ Adjuster's reports ▪ Drivers license
Government	▪ School or university applications ▪ Passport or vehicle license processing	▪ Immigration services ▪ Customs documen
Supply Chain	▪ Customs declarations ▪ Bills of lading ▪ Proof of delivery receipts	▪ Order scheduling and tracking ▪ Insurance documentation
Procurement	▪ Purchase order processing ▪ Customer onboarding ▪ Vendor onboarding	▪ Contract administration ▪ Customer contracts ▪ Tenders
Manufacturing	▪ Sales order processing ▪ Data sheets ▪ Labels and packaging ▪ Customs (import/export) documents ▪ Rebates and refunds	▪ Compliance documents ▪ LEED letters ▪ Quality assurance records ▪ Regulatory documents

Case study

A manufacturing company implemented Intelligent Document Processing (IDP) to automate the processing of over 400,000 invoices per year from 500 different suppliers. The technology integrated optical character recognition (OCR) to identify characters in scanned invoice images, natural language processing (NLP) to understand the words, and machine learning (ML) to recognize patterns in the structure and layout of the invoices.

This transformation significantly reduced the workload of their 29-person data entry team by over 70% within just four months, freeing them from the repetitive and tedious task of manual invoice entry.

The company upskilled six individuals to oversee the new process: they trained the IDP system, monitored the quality of its work, and managed the more complex documents that the system couldn't process. Two team members were tasked with deploying similar digital transformations in other departments. At the same time, the remaining employees were reskilled to take on more interesting and valuable tasks, e.g., business performance analysis with insightful commentary. This move not only enhanced operational efficiency but also allowed the company to utilize its human resources better, driving overall business growth and innovation.

Other example IDP use cases

AI-powered IDP platforms offer numerous business use cases for generating accurate answers from information hidden in documents, including:

Insurance

Expedite the claims lifecycle by automatically processing claims and determining settlement eligibility based on established parameters. AI models can also be trained to detect and flag fraudulent claims based on past indicators and activity.

Tax and compliance

Alleviate seasonal bottlenecks and staff overtime by automating tax return processing and compliance checks.

Financial services

In the financial services sector, IDP can streamline client onboarding and lending processes while implementing robust data governance structures to maximize compliance.

Healthcare

Transform healthcare operations and information management with Generative AI to assist with content summarization for clinical trials and patient history, and with advanced analytics to generate reports with great accuracy.

Higher education

From identifying gaps in course applications to comparing transcripts for transfer credits, leveraging AI in content-centric processes can be game-changing for institutions looking to improve processes and student experiences.

Digital asset management

Capitalize on emerging trends quickly by accelerating the creative content lifecycle with enriched content and advanced search functionalities.

How to choose the right IDP platform

There are a wide variety of IDP platforms to choose from in a growing market. According to IDC, the worldwide IDP market will grow at a CAGR of 28.7%, from $1.75 billion in 2022 to $6.17 billion in 2027. The combined market is experiencing rapid growth due to technological advancements, particularly in the application and use of document AI. This growth is further fueled by innovation and macroeconomic trends that demand increased transparency, visibility, and automation in digitized processes.

Therefore, it can be difficult to select the right IDP solution for your organization. So, it's important to consider how IDP can address your specific organizational needs and whether it has the right functionalities to support them.

How might your organization decide which IDP platform is most suited to your specific needs? The selection criteria below can be used to judge the suitability of an IDP platform:

How accurate is it?

Most IDP solutions have an accuracy rate ranging from 80% to 99%. Ask the vendor how accurate the solution's AI-powered engine is when extracting, classifying and verifying complex document types, including structured and unstructured formats.

Does it work with multiple files, documents, and language types?

The ability to automatically identify multiple documents, ensuring the correct data is extracted from every page, regardless of the business process or language, is key.

Can it clean and enrich data as it ingests?

The ability to perform image clean-up functions like line straightening, removing lines and dot shading, or enhancing characters is key. Content enrichment capabilities allow you to extract more meaningful data from content, enabling quicker access to information and deeper understanding of your business information.

Is it user-friendly?

An intuitive no-code or low-code interface that empowers business users to train and deploy new AI/ML models and automations without the need for highly technical coding or AI expertise is key to democratizing digitalization. The solution should have an intuitive, web-based user interface that's easy to use and integrates seamlessly with existing business applications.

Can non-technical users use it?

The ability to program and extend an IDP platform using low code is crucial for gaining widespread support for an organization's digital transformation program. Low code tools allow immediate changes to be made to IDP platforms without the expense, time overheard or complexity of traditional coding or scripting.

Is it AI infused and trainable?

Be sure to understand the extent of its AI-based capabilities and limitations and how effectively it can incorporate human input. Machine learning models with the ability to determine where key information is located, such as in images, tables, documents, bar codes, etc.,are essential to improve the IDP platform's accuracy.

IDP solutions operate on a built-in intelligence model that can learn, improve and train itself over time. Built-in intelligence that continuously improves over time, further reducing manual touch points whilst accelerating document processing. This eliminates the burden of manual processing and data entry, as well as accelerates downstream classification and data processing, which improves information accuracy across an organizations IT systems.

Does it work with multiple files, documents, and language types?

AI-enhanced capabilities and automated safeguards help to minimize operational bottlenecks and unlock new efficiencies. Documents are often unstructured, meaning the content's location or format can vary between otherwise similar forms.

Vendors deploying document understanding AI technologies are increasingly integrating generative AI (GenAI) and large language models (LLMs). These integrations help deliver enhanced software features and capabilities, such as semantic understanding, document querying, and advanced entity extraction.

Generative AI helps you better understand your documents and helps you retrieve accurate answers based on your enterprise content through Retrieval-Augmented Generation (RAG). Generative AI fills information gaps by generating missing metadata. It can also create new metadata fields as a result of user prompts or questions in natural language. This enables you to better understand documents and helps you retrieve accurate answers based on your enterprise content.

What are its data governance and security policies?

Information governance and data security are high priority items for organizations. Ensure the solution has robust data logging and structured document retention policies in place for compliance and auditing purposes. Role-based permission controls for various business groups within your organization should be present. And IDP data logging is essential for security risk assessment, compliance, and auditing purposes. In the AI age, the ability to log and retain records, enforce structured data retention policies, support information governance, and minimize legal risk, is essential.

Do you have access to technical support?

The vendor should also provide access to comprehensive technical training, an online learning platform, and expert support as and when required.

Does it possess advanced analytics capabilities?

Access to key process metrics and performance indicators, as well as metrics that highlight the accuracy and performance of the IDP platform itself, is essential. The ability to view comprehensive analytics is crucial, as it allows organizations to make informed decisions, optimize processes, and ensure the efficacy of their digital transformation initiatives.

How to choose the right IDP platform - continued

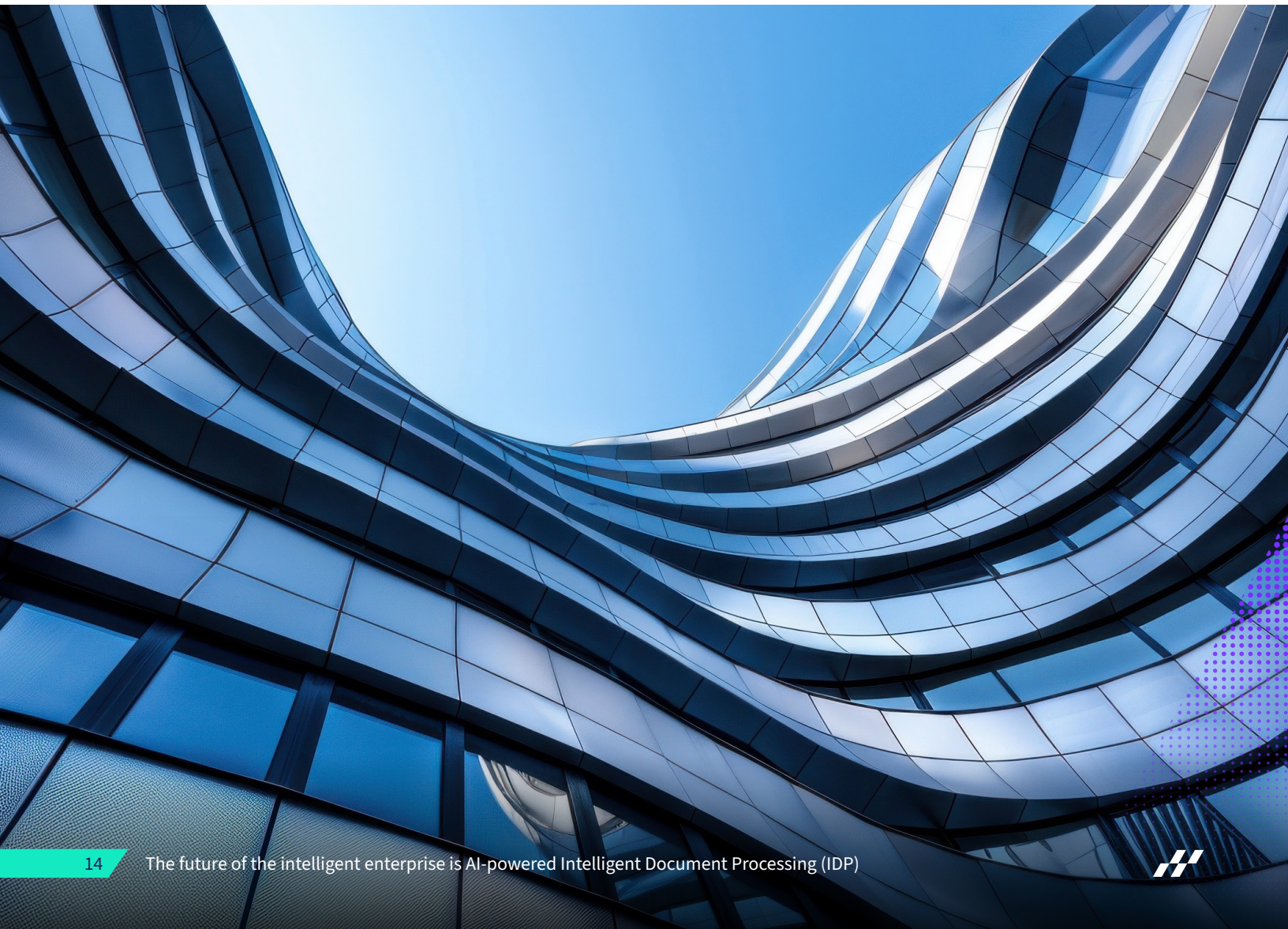
What are its application integration capabilties?

Exceptional IDP solutions offer a wide range of out-of-the-box functionality, enabling organizations to expand their IDP platforms to meet increasingly complex business requirements, seamlessly working with other enterprise applications to create an optimal user experience.

Does it possess automation capabilities?

Integrating IDP into an organizations' operations is not just a step toward automation; it's a leap toward a more data-intelligent future. Features such as integrated process automation, advanced AI-driven data extraction, and a highly scalable, low-code architecture accelerate platform deployment and expansion.

The IDP platform should offer a portfolio of complementary platforms and products, such as case management, workflow, intelligent automation, or robotic process automation (RPA), to support your automation and digitalization programs.



Critical success factors for maximizing business impact from an IDP platform

Implementing an IDP platform may present challenges that can limit your success. Still, when implemented correctly, IDP revolutionizes data management with unparalleled speed, efficiency, and accuracy, delivering benefits far in excess of its cost. To get the best results from an enterprise IDP solution, follow these five steps.

1 Build a strong business case that articulates the benefits of intelligent document processing.

- Run a proof of value (POV) to gauge the suitability of an IDP technology solution within your specific organization.
- Demonstrate the solution to key stakeholders and seek their direction and feedback.
- Deliver workshops to collect and prioritize a backlog of high-value IDP business opportunities.

2 Seek executive approval and sponsorship.

- Have an executive sponsor to champion the IDP program.
- Present an IDP business case, including total expected benefits and a roadmap for implementation, to the executive team in order to get their approval and a program budget.
- Set realistic expectations on implementation time and running costs.
- Outline a clear governance structure to track business opportunities and benefits over time.

3 Reach out to vendors and select an IDP platform and implementation partner.

- Create a vendor selection matrix and assess each IDP vendor and their platform.
- Engage your CISO, risk, finance, and procurement teams to negotiate a win-win deal with your IDP vendor of choice.
- Select a secure, enterprise-wide IDP platform.
- If your vendor does not have an implementation team, then go to market and identify an implementation partner.

4 Roll out an IDP solution.

- Start small but think big: scale the IDP solution quickly to deliver significant value back to the business.
- Build a Center of Expertise (COE) to drive IDP adoption, best practice, and widespread use.
- Develop a comprehensive training and change management program to gain and retain buy-in for the IDP program.
- Train the IDP machine learning models using large volumes of use-case-specific documents and data.
- Focus on data quality and integrity by employing data governance controls supported and enforced by data quality champions.
- Augment your AI learning models with Retrieval-Augmented Generation (RAG) trained on your company documents to help them understand document content better, so your outputs are more relevant and informative.
- Continually monitor IDP metrics and performance indicators that highlight the accuracy and performance of the IDP platform.

5 Scale your IDP solution across the enterprise.

- Rapidly scale your IDP solution. For example, start with invoices in a single country or documents from the top vendors within a geographic region, then rapidly scale across functions, regions, and international geographies.
- Utilize complementary technologies, such as robotic process automation (RPA). This will help accelerate the flow of data between applications, systems, and people to ensure that your staff are always working with the most accurate and recent information as they make critical business and process decisions.
- Continually extol the benefits and impact of your IDP program to retain business interest and attract further funding and ideas for your IDP delivery program.
- Govern the delivery of IDP to ensure value is delivered over time.

Conclusion

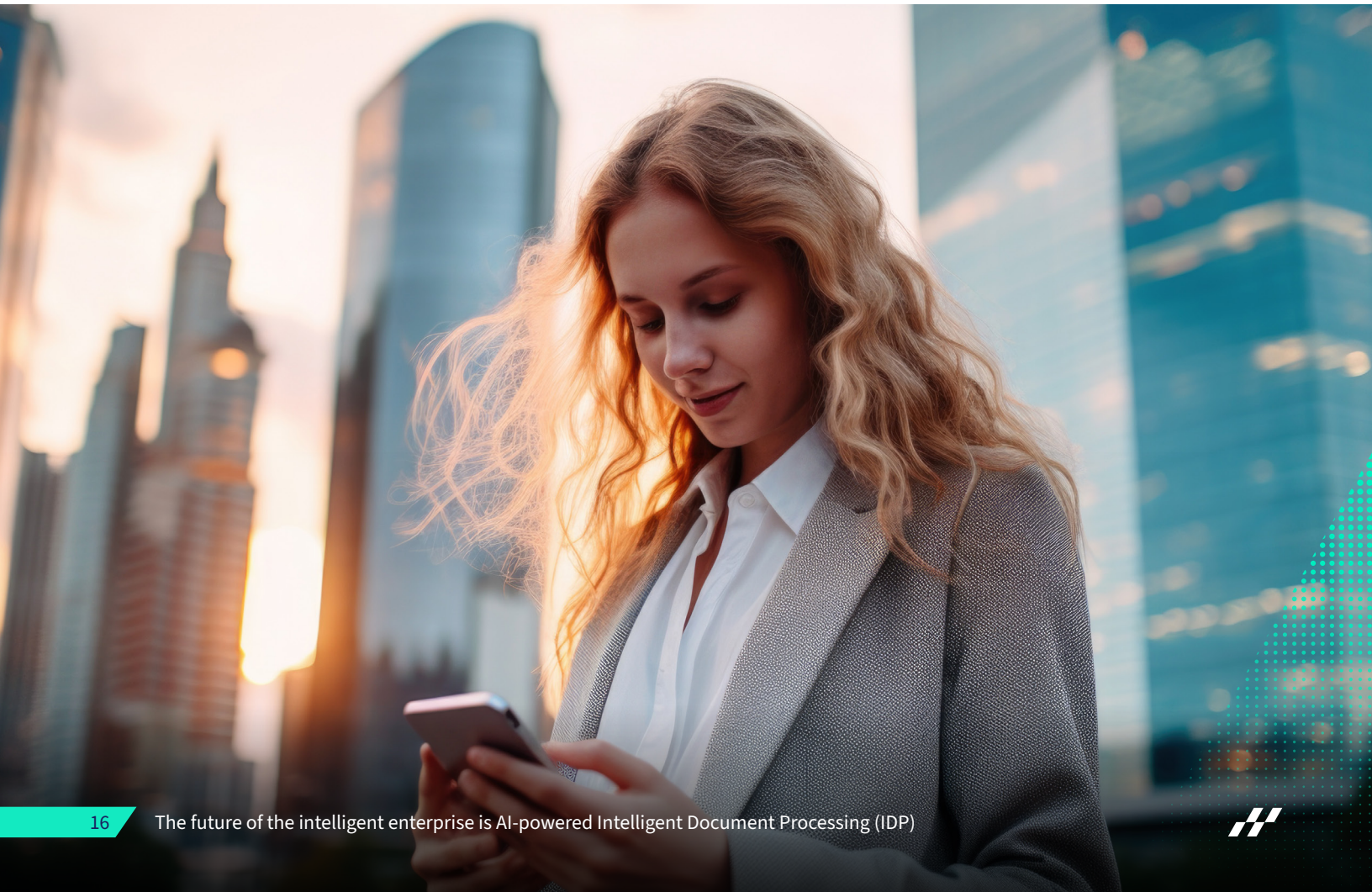
As the volume of data generated from day-to-day operations grows, Intelligent Document Processing (IDP) has shifted from a supplementary tech tool to a critical competitive differentiator. Leveraging AI-infused document processing in operations and strategic decision-making brings new levels of efficiency, accuracy, and innovation, setting businesses apart in a crowded marketplace.

Organizations relying on manual document processing face high costs, errors, and slow operations, leading to poor data quality and sub-optimal business decisions. In contrast, AI-powered IDP platforms offer a cutting-edge solution, accurately extracting and classifying data from vast document repositories at scale. This precision is achieved at a cost that suits most budgets, providing a compelling return on investment.

By implementing IDP, organizations can unlock valuable data from their document libraries, freeing their workforce to focus on more strategic tasks. The data harnessed through IDP enables better decision-making, transforming businesses into intelligent digital organizations. The IDP market is poised for further growth with advancements in AI, including generative AI and large language models, expected to drive even greater efficiencies and capabilities in document processing.

The capabilities of IDP platforms will only become more powerful, precise, and faster over time, thus enhancing their value and impact. If your goal is to transform your organization into an intelligent digital enterprise, consider IDP as a way to bring your most critical data to life, drive operational efficiency, and achieve sustainable growth.

Have you already started your **IDP transformation**?



About the authors

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Pascal Bornet is an award-winning expert, author, and keynote speaker on Artificial Intelligence (AI) and Automation. He has received multiple awards and is regularly ranked as one of the top 10 global AI and Automation experts. He is also an influencer with more than a million followers on social media.

Bornet developed his expertise over more than 20 years as a senior executive at McKinsey and EY, where he created and led their "Intelligent Automation" practices and implemented AI and Automation initiatives for hundreds of organizations around the world.

For the past 20 years, Bornet's research has focused on the intersection of AI and Humans, where he believes the greatest value lies. He is a fervent advocate for human-centric AI, and he believes that with the right approach, AI can make our world more human.

He has authored two best-selling books, "INTELLIGENT AUTOMATION" and "IRREPLACEABLE," and his insights have been featured in prestigious publications such as Forbes, Bloomberg, McKinsey Quarterly, and The Times. He is also a lecturer at several universities, a member of the Forbes Technology Council, and a Senior Advisor for several startups and charities.

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Kieran Gilmurray is an internationally acclaimed expert in AI, Automation, GenAI, and Digital Transformation with 30 years of experience. As an author, industry analyst, and real-world strategist, he has generated over $200 million in value for businesses through his innovative solutions and actionable strategies.

Recognized as one of the top global experts in his field, Kieran regularly delivers keynote speeches worldwide and has been named in prestigious lists such as the Best LinkedIn Influencers Artificial Intelligence and Marketing 2024, Top 14 People to Follow in Data in 2023 and the World's Top 200 Business and Technology Innovators. His expertise spans across developing data analytics, automation, AI, process improvement, and emerging technologies solutions for medium to global-scale organizations.

Kieran's educational background is extensive, including an MBA with distinction from Queen's University Belfast, an MSc in Computer Science, and various diplomas in business finance, company direction, executive coaching, and digital marketing. He is also a published author, with two practical books on digital transformation and Generative AI that break down complex technical concepts for business professionals.

With leadership roles in FTSE 100 companies and a track record of building global AI and intelligent automation centers of expertise, Kieran Gilmurray continues to be a highly sought-after consultant and advisor in the rapidly evolving world of digital transformation and artificial intelligence.

Sources

1 A commissioned study conducted by Forrester Consulting on behalf of Hyland, October 2023.

2 A commissioned study conducted by Forrester Consulting on behalf of Hyland, October 2023.