



FINE-TUNED GEN-AI MODELS IN INTELLIGENT DOCUMENT PROCESSING

CAPSYS CAPTURE™
WHITEPAPER

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ABSTRACT

// CAPSYS CAPTURE ONLINE

As the Intelligent Document Processing (IDP) marketplace evolves, organizations require greater accuracy, scalability, and automation to manage growing volumes of structured and unstructured documents. **Fine-tuned Generative AI (GenAI) models offer a strategic advancement by aligning AI capabilities with industry-specific lexicons, workflows, and compliance requirements.**

This whitepaper examines the advantages of fine-tuned GenAI models in IDP—including improved extraction accuracy, operational efficiency, scalability, and competitive differentiation—while also addressing implementation considerations such as data preparation and computational investment. By leveraging domain-specific AI models, organizations can streamline document-centric operations and enhance long-term performance outcomes.

// WE WILL EXAMINE . . .

- The strategic advantages of fine-tuned GenAI in IDP
- Improvements in data extraction accuracy and contextual understanding
- Operational efficiencies and cost optimization potential
- Scalability considerations for high-volume environments
- Implementation challenges, including data preparation and computational investment

// TARGET INDUSTRIES

- Finance
- Healthcare
- Legal
- Insurance
- Government
- Manufacturing
- Education
- Retail

EXECUTIVE SUMMARY

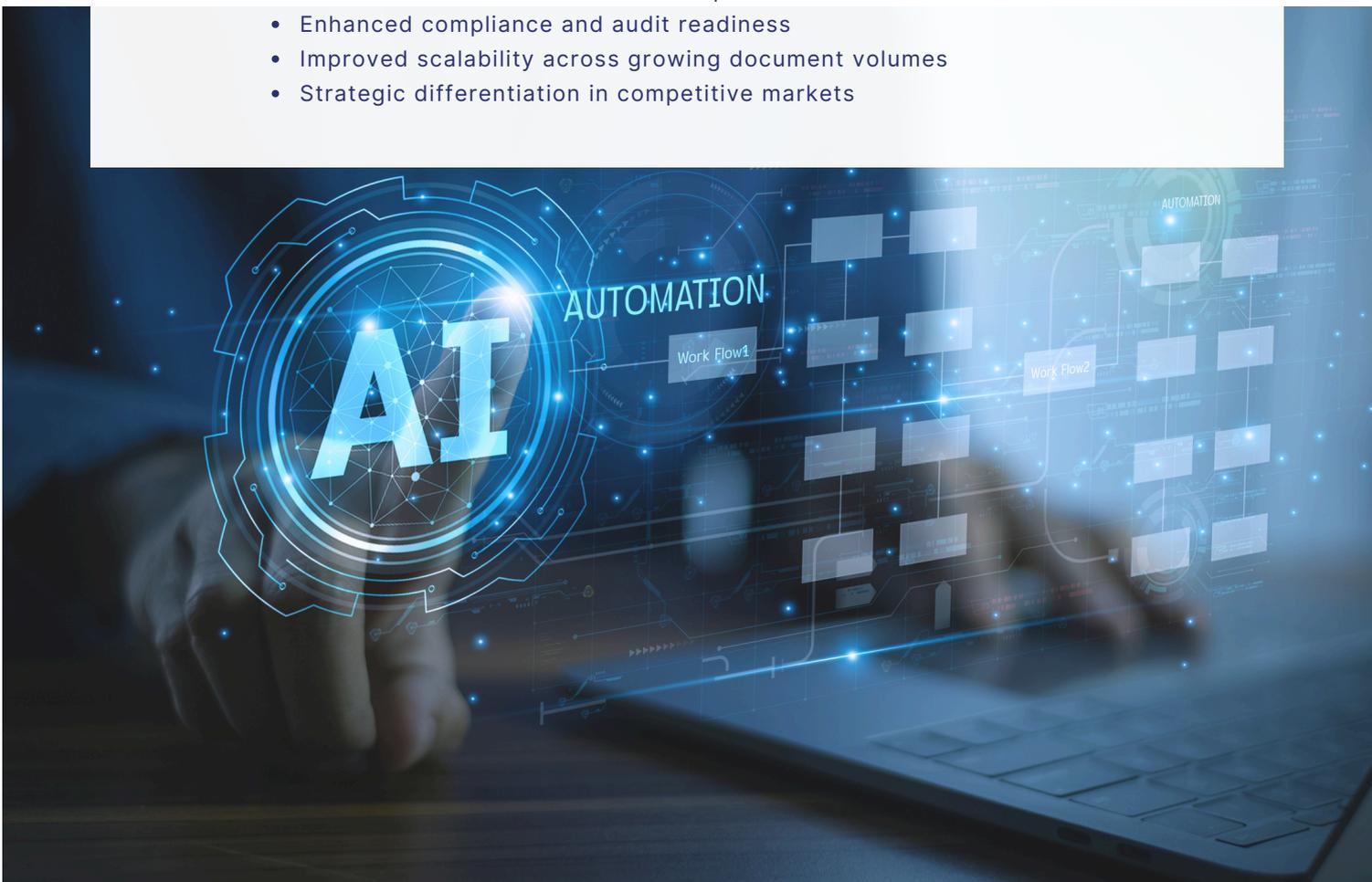
Welcome to a deeper understanding of the challenges and opportunities shaping your business today.

Document-intensive industries are under increasing pressure to improve operational efficiency while maintaining regulatory compliance and data accuracy. **Today, an estimated 80% of enterprise data is unstructured, and organizations spend 20–30% of operational time managing document workflows**, often relying on legacy OCR and rule-based systems that require manual oversight.

While fine-tuning requires investment in training data and model oversight, the long-term gains in automation maturity and efficiency position fine-tuned GenAI as a foundational capability for intelligent digital operations.

>>> ORGANIZATIONS CAN EXPECT

- Increased accuracy in document classification and data extraction
- Reduced manual intervention and operational costs
- Enhanced compliance and audit readiness
- Improved scalability across growing document volumes
- Strategic differentiation in competitive markets



THE STRATEGIC ADVANTAGES OF FINE-TUNED GEN-AI IN IDP

// ENHANCED ACCURACY AND CONTEXTUAL UNDERSTANDING

- Fine-tuned GenAI models excel at interpreting nuanced language, understanding context, and extracting precise information from complex, structured, semi-structured, or unstructured documents.
- These models adapt to industry-specific lexicon, technical terminology, and document structures, ensuring superior accuracy in data extraction and classification tasks over traditional methods that have been used in the past.

// CUSTOMIZATION AND PERSONALIZATION FOR SPECIFIC USE CASES

- Base versions of generative AI models tend to over-generalize or misunderstand domain-specific lexicon, whereas models that are fine-tuned on domain-specific datasets optimize them for relevant applications such as:
 - Summarizing legal contracts
 - Processing insurance claims
 - Analyzing medical records
- This customization ensures seamless integration with business process workflows and compliance requirements, delivering high-value solutions tailored to industry needs.

// IMPROVED EFFICIENCY AND AUTOMATION

- Fine-tuned GenAI models reduce reliance on manual intervention by automating document processing tasks such as:
 - Classification
 - Data extraction (OCR and ICR)
 - Summarization
- Businesses gain faster decision-making capabilities by synthesizing large volumes of data into real-time actionable insights, enhancing operational workflows across industries.

// COST SAVINGS

- Traditional data and document capture systems rely on manual data entry or rule-based configurations and OCR/ICR, which are expensive, less accurate and time-consuming.
- Fine-tuned GenAI models reduce operational costs by minimizing manual labor and optimizing API usage, resulting in lower expenditures on third-party services.

// SCALABILITY AND ADAPTABILITY

- These models handle diverse document types (structured, semi-structured, and unstructured) across varying volumes without compromising performance.
- As business needs evolve, fine-tuned GenAI models can be adapted to include new document formats and regulatory changes, ensuring long-term sustainability. This is because the act of fine-tuning creates a requirement for a degree of similarity between the training data and the new documents it has never seen before. As such, a fine-tuned model may struggle with new formats, but they can always be updated to include the changes if the results are unsatisfactory. By definition, fine-tuning a model causes it to lose some of its ability to generalize, which is why careful balancing and oversight is required during the tuning process.

// COMPETITIVE ADVANTAGE

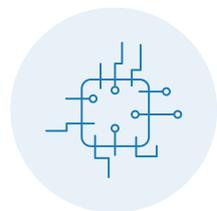
- Organizations that leverage fine-tuned GenAI models differentiate themselves in the IDP space by offering more accurate, customized, and efficient data and document capture, indexing and processing solutions.
- Continuous improvements in fine-tuning techniques allow businesses to stay ahead of competitors, capitalizing on the latest advancements in AI and machine learning.



IMPLEMENTATION CONSIDERATIONS AND CHALLENGES

// WHILE FINE-TUNING OFFERS SUBSTANTIAL BENEFITS, IT REQUIRES:

- Investment in computational resources
- Expertise for model training and fine-tuning
- Ongoing monitoring and evaluation to ensure optimal performance
- Initial data gathering and labeling. This is easily the greatest barrier to entry for fine-tuning as **Subject Matter Experts (SMEs)** are needed to take the time to accumulate hundreds to thousands of samples to be used for the GenAI training process that must be indexed and verified as correct. There are automation steps that can take place to help with this step, but those processes and systems must be created in advance.



> RESEARCH

Fine-tuned AI models depend on curated, domain-specific datasets. Organizations must gather and label representative document samples to train models to accurately interpret industry terminology and document structures.

> COMPUTATIONAL & INFRASTRUCTURE NEEDS

Training and deploying fine-tuned models requires scalable computing resources and storage capacity. Cloud platforms reduce barriers to entry, but organizations must plan for processing workloads and deployment architecture.

> CONTINUOUS AI MODEL OPTIMIZATION

AI models require monitoring and periodic retraining to maintain performance as document formats, workflows, and regulatory requirements evolve.

INDUSTRY APPLICATIONS AND SECTOR IMPACT

Fine-tuned Generative AI models deliver measurable value across industries that rely heavily on document-intensive workflows and regulatory oversight.

INDUSTRY APPLICATIONS OF FINE-TUNED GENAI IN IDP



Finance & Banking

High volumes of regulated documents.

Use Cases

- Loan & mortgage processing
- KYC / AML verification
- Financial statement extraction



Healthcare

Complex patient records management.

Use Cases

- Medical record extraction
- Insurance claims documentation
- Care coordination workflows



Insurance

Claims and policy document automation.

Use Cases

- Claims automation
- Policy documentation analysis
- Fraud detection support



Legal Services

Contract and case file analysis.

Use Cases

- Contract review & summarization
- Legal document classification
- Case file analysis



Government & Public Sector

Regulatory filings and public records.

Use Cases

- Public records digitization
- Permit & licensing processing
- Regulatory document management



Manufacturing & Supply Chain

Procurement and logistics documents.

Use Cases

- Invoice & procurement automation
- Logistics documentation processing
- Regulatory document management



Education

Student records and admin documents.

Use Cases

- Admissions document processing
- Student record digitization
- Financial aid form automation



Retail & E-Commerce

Customer and order documentation.

Use Cases

- Order & return processing
- Vendor documentation automation
- Customer feedback analysis

INDUSTRY APPLICATIONS AND SECTOR IMPACT CONT.

// FINANCE AND BANKING

Use Cases: Processing loan applications, analyzing financial statements, and ensuring compliance with Anti-Money Laundering (AML) and Know Your Customer (KYC) regulations.

Benefits: Enhances accuracy in financial document analysis, reduces fraud risks, and automates regulatory compliance

// LEGAL

Use Cases: Analyzing contracts, summarizing case files, and extracting obligations from legal documents.

Benefits: Reduces manual document review time, ensuring faster and more reliable legal insights.

// HEALTHCARE PROVIDERS AND NAVIGATORS

Use Cases: Extracting patient information from Electronic Health Record solutions (EHRs), automating insurance claims, and summarizing clinical trial data.

Benefits: Improves processing speed while maintaining HIPAA compliance and enhancing medical data analysis.

// INSURANCE (LIFE, PROPERTY AND CASUALTY, HEALTH)

Use Cases: Automating claims processing, faster intake new of new applications, detecting fraud, and analyzing policy documents.

Benefits: Fine-tuned models reduce claim-processing errors, improving turnaround time and customer satisfaction. It can also speed up the intake process for New Business Underwriting.

// MANUFACTURING & SUPPLY CHAIN

Use Cases: Processing invoices, managing procurement documents, and analyzing bills of lading and shipping manifests.

Benefits: Enhances supply chain and logistics automation, reducing delays caused by manual data entry.

// GOVERNMENT & PUBLIC SECTOR

Use Cases: Managing public records, processing tax forms, and analyzing legal and regulatory documents.

Benefits: Automates compliance-heavy processes, ensuring regulatory adherence and efficiency.

// EDUCATION

Use Cases: Processing academic transcripts, grading essays and tests, and managing student records.

Benefits: Streamlines administrative workflows while ensuring data security and compliance.

// RETAIL

Use Cases: Analyzing customer feedback, managing inventory data, and automating the product return process.

Benefits: Improves customer experience by extracting insights from unstructured consumer data.

CONCLUSION

Fine-tuning GenAI models for Intelligent Document Processing (IDP) **delivers highly accurate, scalable, and customized solutions** that **meet industry-specific needs.**

+40%

of employees' time can be spent searching for or managing documents.

> LOWER COSTS

Organizations implementing Intelligent Document Processing and AI-driven automation can significantly reduce operational expenses associated with manual data handling.

> ENHANCED EFFICIENCY

Fine-tuned AI models dramatically increase processing speed and reduce manual review time for document-heavy workflows.

+60-80%

improvement in document processing performance

> GREATER COMPLIANCE ADHERENCE

Fine-tuned AI models improve consistency and accuracy in regulated environments where document errors create compliance risk.

+50%

or more of compliance-related document errors can be reduced through automated validation in regulated industries.

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