

# Agentic Document Extraction Research - Landing AI

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## Executive Summary

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This document evaluates Landing AI's Agentic Document Extraction technology for global enterprise deployment. The key findings are as follows:

- **Technology:** Landing AI's solution is a significant step up from traditional OCR. Its core strengths are **visual grounding** (linking extracted data to its source location on the document) and **layout-agnostic parsing**, which allows it to handle a wide variety of document formats without pre-training. This makes it highly suitable for our diverse global document landscape (invoices, POs, contracts, etc.).
- **Deployment & Cost:** The solution is flexible, with **cloud, edge, and Docker-based on-premise/hybrid deployment options**. The primary cost model is **\$0.03 per page**, which is competitive. However, on-premise deployments will incur additional infrastructure and operational costs. For global sites, especially in regions like China, on-premise deployment via Docker is the most viable option to ensure low latency and data sovereignty, but this will require careful cost analysis.
- **Performance & Scalability:** The platform is built for scale, processing thousands of pages per minute with a recently improved median processing time of 8 seconds per document. It excels with complex layouts, tables, and charts. However, its performance on **handwritten documents and multi-currency recognition is not yet clear** and requires testing with our specific documents.
- **Compliance & Security:** Landing AI is **SOC 2 Type II and HIPAA compliant**, and offers a **Zero Data Retention (ZDR)** option, which is crucial for data privacy regulations like GDPR and CCPA. Data residency options are available, particularly within the EU.
- **Vendor & Competition:** Landing AI is a growing player in the AI vision space, backed by a strong customer base in various industries. The market is competitive, with major players like **Google Document AI, AWS Textract, and Microsoft Syntex**, as well as established IDP vendors like **UiPath and ABBYY**. Landing AI's key differentiator is its visual grounding and ease of use for complex, non-standard documents.

**Recommendation:** Landing AI's Agentic Document Extraction presents a compelling solution for our needs. The next step should be a **Proof of Concept (PoC)** to validate its performance on our specific document types, particularly those with handwriting and multiple currencies, and to get a clearer picture of the total cost of ownership for both cloud and on-premise deployments across our key global sites.

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# 1. Technology Overview

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## What is Agentic Document Extraction?

Landing AI's Agentic Document Extraction is an AI-powered solution that goes beyond traditional Optical Character Recognition (OCR) to provide intelligent document understanding with visual context. It aims to convert decades of archived documents into LLM-ready data efficiently. The technology captures important details, including form fields, tables, and checkboxes, and provides accurate descriptions based on their visual layout.

### Key Features:

- **Complex Layout Extraction:** Parses documents into semantic chunks for high-quality data ingestion, preparing data for RAG in downstream LLM applications. It offers zero-shot parsing of diverse document formats (PDFs, scans, tables) without requiring layout-specific training. It captures intricate semantic relationships between elements beyond basic OCR to extract enriched data, including form fields and layouts.
- **Accurate Extraction of Tables and Charts:** Accurately extracts data from charts, tables, and complex visual layouts, eliminating errors and partial interpretations common in text-only analysis. This enables comprehensive data capture for precise insights across industries.
- **Visual Grounding:** Pinpoints exact locations of visual elements and text in documents, enabling answer verification by linking responses to source information. This builds trust through transparent, traceable AI-generated insights.
- **Field Extraction:** Allows extraction of specific fields from documents like invoices, medical records, or insurance forms. It automates large-scale extraction, minimizes manual errors, and ensures consistent, validated results. Each extracted field can be traced back to its source with visual grounding, and schemas can be adapted to any workflow.

## 2. Use Cases in Your Company

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Based on the capabilities of Landing AI's Agentic Document Extraction, potential use cases within a company dealing with various document types globally include:

- **Automated Data Extraction:** Efficiently parse and extract structured data from unstructured documents such as invoices, purchase orders, contracts, shipping documents, and compliance papers.
- **Preparation for LLM Applications:** Convert existing document archives into a format suitable for Large Language Model (LLM) applications, facilitating advanced analytics and insights.
- **Enhanced Accuracy for Complex Documents:** Leverage the visual grounding and complex layout extraction features to accurately process documents with intricate structures, tables, and charts, which are often challenging for traditional OCR systems.
- **Reduced Manual Effort:** Automate the process of scanning, parsing, and extracting data from documents, significantly reducing manual data entry and associated errors.
- **Global Document Processing:** The ability to handle diverse document formats and layouts makes it suitable for processing documents from various suppliers and regions worldwide.

### 3. Technical Fit

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#### API Availability and Ease of Integration:

Landing AI provides an Agentic Document Extraction API that allows for programmatic interaction. The documentation mentions a Python library and direct API calls, suggesting good integration capabilities. The API extracts structured data in hierarchical JSON with exact page and coordinate references, and also supports Markdown output, making it suitable for various downstream applications.

#### Deployment Options and Costs:

Landing AI offers flexible deployment options for its AI models, including:

- **Cloud Deployment:** This is likely the primary deployment method for Agentic Document Extraction, given its API-driven nature. It reduces deployment complexity, allows for quick model retraining, and enables easy scaling and management of projects across different locations. Costs are typically consumption-based (per page processed), as seen with Landing AI's pricing model. Additional costs would be associated with data storage and transfer within the cloud environment, which can vary by region.
- **Edge Deployment (using LandingEdge):** This is an all-in-one application for end-to-end AI deployment on edge devices, with seamless communication with industrial cameras and PLCs. While primarily for vision models, it suggests the possibility of localized processing. Costs would involve the edge hardware, software licenses for LandingEdge, and potentially reduced data transfer costs compared to pure cloud solutions. Operational costs for managing edge devices would also be a factor.
- **Docker:** This provides a packaged model and inference application that can be installed in different environments. It offers total API control and can be deployed on a private cloud or any OS (Windows, Linux, or Mac) with or without a GPU. This is the most promising option for on-premise or hybrid deployments. Costs would include server hardware, maintenance, power, and potentially Docker licensing, in addition to Landing AI's per-page processing fees. Significant IT overhead for setup, management, and scaling would also contribute to the overall cost.

#### Regional Impact on Speed and Cost (US, China, Malaysia, India, Ukraine)

- **United States:** Typically lowest latency when workloads are hosted in US regions. Pricing for Landing AI's cloud is per page and generally not region-dependent, but surrounding cloud costs (storage, bandwidth egress, API gateway) can vary by cloud provider and region. Data residency within the US is commonly supported by major clouds, easing compliance.
- **China (Mainland):** Public clouds operate under separate footprints (e.g., AWS China, Azure operated by 21Vianet; Google Cloud is generally unavailable). Expect higher network latency and additional compliance requirements (e.g., ICP, cross-border data controls). If Landing AI's managed cloud is not reachable or permitted, consider Docker/on-prem deployments inside China to reduce latency and satisfy data sovereignty, noting added infra and ops cost.
- **Malaysia:** Hyperscalers are expanding presence (new AWS region launched; Google and Microsoft announced investments/regions). Local regions reduce latency and may slightly differ in price vs. US/EU. Data residency within Malaysia becomes feasible depending on provider; total cost will include local storage and inter-region traffic if any.
- **India:** Multiple cloud regions (AWS, Azure, Google Cloud) provide good latency and regional pricing. UiPath and other vendors operate data centers and/or regional services. Data residency is achievable with the right region choice; network egress and inter-region transfers can materially affect total cost.

- **Ukraine:** No primary hyperscaler region at the time of writing; traffic typically routes to nearby EU regions (e.g., Warsaw, Frankfurt), implying higher latency than in-region. Consider on-prem/Docker for latency-sensitive or regulated use cases. Cloud costs will include higher network transit to nearest regions.

Practical guidance: For each site, benchmark latency to nearest regions and model total cost of ownership (per-page fees + storage + egress + ops). Where sovereignty or latency is critical (notably China and Ukraine), prioritize on-prem/Docker or a vendor with local hosting.

**Offline Mode:** The documentation indicates "Offline Mode" is not directly supported for Cloud or Edge deployments. For Docker, it's not explicitly stated, but a Docker container could potentially operate offline after initial setup and model download, depending on the specific implementation of Agentic Document Extraction within the Docker image. Further clarification is needed on how Agentic Document Extraction specifically handles offline scenarios.

**On-premise/Hybrid:** The Docker deployment option strongly suggests support for on-premise or hybrid deployments, as it allows for installation in private clouds or on local machines. However, explicit confirmation for Agentic Document Extraction is still needed.

## 4. Performance & Accuracy

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### Key Aspects:

Landing AI emphasizes "precision extraction" and "accurate extraction of tables and charts," even from complex documents. The "visual grounding" feature, which pinpoints exact locations of visual elements and text, is highlighted as a way to enable answer verification and build trust through transparent, traceable AI-generated insights. This suggests a focus on high accuracy and verifiability.

### Performance Metrics:

Recent updates to Landing AI's Agentic Document Extraction highlight significant performance improvements, with claims of being "17x faster" and an improved median document processing time from 135 seconds to 8 seconds. The focus remains on "precision extraction" and "accurate extraction of tables and charts," leveraging visual context for enhanced accuracy.

While specific metrics like the exact percentage of correctly parsed fields are not readily available in the initial search results, the emphasis on "visually grounded" insights and the ability to "understand relationships between elements" suggests a high level of accuracy, especially for complex document layouts.

### Handwriting Recognition:

Explicit information regarding the performance of Agentic Document Extraction on handwritten documents is not readily available in the public documentation or search results. While the system leverages advanced OCR, its specific accuracy for various handwriting styles and complexities remains unclear. It is recommended to conduct specific tests with handwritten documents relevant to your company's use cases to assess its performance in this area.

### Adaptability and Multilingual Support:

The solution is described as "layout-agnostic parsing" and capable of handling "diverse document formats (PDFs, scans, tables) without requiring layout-specific training." This indicates strong adaptability across different formats and layouts, which is crucial for global operations with varied document sources.

Landing AI Agentic Document Extraction supports a wide range of languages, with extraction accuracy influenced by script type, image clarity, and formatting. The languages are categorized into three levels of support:

- **Strong Support (consistent and accurate results):** English, Chinese (Simplified and Traditional), Dutch, French, German, Italian, Japanese (All scripts), Korean, Portuguese, Russian, Spanish.
- **Moderate Support (accuracy varies based on font and clarity):** Arabic, Czech, Danish, Finnish, Greek, Hebrew, Hindi, Indonesian, Norwegian, Polish, Swedish, Thai, Turkish, Vietnamese.
- **Basic Support (may struggle with complex scripts):** Amharic, Bengali, Gujarati, Malayalam, Tamil, Telugu, Urdu, and other non-Latin or stylized scripts.

### Multi-currency Support:

Information regarding explicit multi-currency support is not yet found. While the system can extract numerical data, its ability to specifically recognize and validate various currency formats across different locales needs further investigation.

## 5. Scalability

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Landing AI's Agentic Document Extraction is designed for high scalability, addressing the need to handle large volumes of documents for global rollout. Key indicators of its scalability include:

- **High Throughput:** The system is capable of processing "hundreds to thousands of pages per minute," indicating its capacity to handle millions of documents per month, which is crucial for global enterprise-level deployment.
- **Reduced Latency:** Recent upgrades have significantly improved processing speed, with the median document processing time reduced from 135 seconds to 8 seconds. This low latency ensures efficient and rapid data extraction, even at high volumes.
- **Training New Document Types without Heavy Manual Work:** The solution emphasizes "no-template setup" and "layout-agnostic parsing." This means that new document types can be processed without extensive manual configuration or training, significantly reducing the overhead associated with adapting to diverse document formats from different regions or suppliers. The ability to adapt schemas to any workflow further enhances this flexibility.

These features collectively suggest that Agentic Document Extraction can handle global rollout effectively, providing a robust solution for large-scale document processing needs.



## 6. Compliance & Security

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Landing AI is committed to protecting user data and maintaining high security standards for Agentic Document Extraction. Key aspects include:

- **Security Posture and Compliance:** Landing AI provides resources outlining its security practices, compliance with industry standards, and measures taken to safeguard data across its products and infrastructure. They mention compliance certifications such as SOC 2 Type II and HIPAA.
- **Data Privacy:** Landing AI offers a "Zero Data Retention (ZDR) Option" for customers with strict data privacy and compliance requirements. This indicates a strong commitment to data privacy and the ability to configure the service to meet stringent regulations like GDPR and CCPA.
- **Data Residency:** While the main security page doesn't explicitly detail all data residency options, a search result from the changelog mentioned "Data residency: All data is stored and processed within the EU; GDPR compliance: Coming soon." This suggests that data residency options are available, at least within the EU, and that GDPR compliance is a priority.

Further details on specific certifications and regional data processing capabilities would require a deeper dive into their Trust Center and Security and Compliance documentation.

## 7. Costs & Licensing

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Landing AI offers a pricing model for its Agentic Document Extraction API. Based on the search results:

- **Pricing Model:** The Agentic Document Extraction API is priced at **\$0.03 per page processed**. There are lower limits that apply when using a free amount, and funds can be added to unlock higher rate limits. This indicates a pay-as-you-go or consumption-based model.
- **Enterprise Solutions:** Landing AI also offers flexible pricing for enterprise-grade solutions, suggesting that custom plans are available for larger organizations with specific needs and higher volumes.
- **Additional Infrastructure Costs:** While the pricing is per page, it's important to consider potential additional infrastructure costs if deploying via Docker on private clouds or on-premise, as this would involve managing and maintaining the underlying hardware and software. Cloud deployments would likely incur costs based on usage of cloud resources.
- **Hidden Costs:** The information on hidden costs such as retraining models, customization, and support is not explicitly detailed in the pricing information found. These aspects would typically be part of enterprise agreements or require further inquiry with Landing AI sales.

## 8. Vendor Evaluation

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### Landing AI Maturity (Customer Base, References, Roadmap):

Landing AI has a diverse customer base, including companies in automotive, industrial goods, agricultural equipment, electronics, and pharmaceutical sectors. Their customer base spans small, medium, and large enterprises, with a significant portion being large companies (over 1000 employees). While specific customer references for Agentic Document Extraction are not explicitly listed in public search results, their general customer archive and industry presence suggest a level of maturity in the AI vision space.

Information on a detailed public roadmap for Agentic Document Extraction is not readily available, but continuous updates and improvements (like the 17x speed increase) indicate active development.

### Support & SLA:

Landing AI provides a Support Center and Community for its products, including Agentic Document Extraction. Users can submit support tickets via email. While specific Service Level Agreements (SLAs) are not publicly detailed, the presence of a dedicated support system and community suggests a commitment to assisting users. Rate limits are in place to ensure API availability and performance.

### Alternatives/Competitors:

The market for document AI and extraction is competitive, with several established players offering similar or complementary solutions. Key alternatives and competitors include:

- **Google Document AI:** A document understanding platform from Google Cloud that helps developers create high-accuracy processors to extract, classify, and split documents. It focuses on transforming unstructured data into structured data.
- **AWS Texttract:** A machine learning service from Amazon Web Services that automatically extracts text, handwriting, and data from scanned documents. It is known for its OCR capabilities and ability to extract data from various document types like invoices and purchase orders.
- **Microsoft Syntex:** A content understanding, processing, and compliance service for Microsoft 365 that uses intelligent document processing. It offers AI-powered content management and productivity services.
- **UiPath Document Understanding:** Combines Robotic Process Automation (RPA) and AI to extract and interpret data from various document types and formats, including images. It leverages OCR, Machine Learning, and other AI technologies for classification, extraction, and validation of data from documents.
- **ABBYY:** Offers Intelligent Document Processing (IDP) solutions like ABBYY FlexiCapture and ABBYY Vantage. These solutions use AI-based technology, including natural language processing (NLP) and advanced OCR, to recognize and extract data from structured, semi-structured, and unstructured documents, including handwritten text. ABBYY aims to automate 100% of data extraction and can process documents of any type, complexity, and language. ABBYY FlexiCapture also has an on-premise deployment option.

**Comparison Table:**

Feature/Vendor	Landing AI Agentic Document Extraction	Google Document AI	AWS Textract	Microsoft Syntex	UiPath Document Understanding	Abbyy
Technology Overview	Agentic AI, Visual Grounding, OCR, NLP	AI, OCR, NLP	ML, OCR, NLP	AI, OCR, NLP	RPA, AI, OCR, ML	AI, OCR, NLP
Deployment Options	Cloud, Docker (On-premise/Hybrid potential)	Cloud	Cloud	Cloud	Cloud, On-premise	Cloud, On-premise
Offline Support	Unclear (Docker potential)	No	No	No	Yes (RPA component)	Yes
API Availability	Yes	Yes	Yes	Yes	Yes	Yes
Extraction Accuracy	High (visually grounded)	High	High	High	High	High
Handwriting Support	Unclear	Yes	Yes	Yes	Yes	Yes
Speed/Throughput	Hundreds to thousands of pages/min	High	High	High	High	High
Adaptability	Layout-agnostic, zero-shot	Template-based, custom processors	Custom extractors	Custom models	Template-based, ML models	Template-based, ML models
Multilingual Support	Strong, Moderate, Basic	Yes	Yes	Yes	Yes	Yes
Multi-currency Support	Unclear	Yes	Yes	Yes	Yes	Yes
Data Privacy/Security	SOC 2 Type II, HIPAA, ZDR option	GDPR, CCPA, ISO 27001	GDPR, CCPA, ISO 27001	GDPR, CCPA, ISO 27001	GDPR, CCPA, ISO 27001	GDPR, CCPA, ISO 27001
Data Residency	EU (specifics needed)	Global regions	Global regions	Global regions	Global regions	Global regions
Pricing Model	Per page (\$0.03/page)	Per page/feature	Per page/feature	Per page/feature	License/usage	License/usage
Maturity	Growing	Mature	Mature	Mature	Mature	Mature

Feature/Vendor	Landing AI Agentic Document Extraction	Google Document AI	AWS Textract	Microsoft Syntex	UiPath Document Understanding	Abbyy
Support & SLA	Support tickets, Community	Enterprise support, SLA	Enterprise support, SLA	Enterprise support, SLA	Enterprise support, SLA	Enterprise support, SLA
Regional Impact (Speed/Cost)	Pricing is per page, likely consistent globally for cloud, but latency will vary based on proximity to cloud regions. Data residency options can impact cost.	Pricing varies by region, with specific pricing for different processors. Latency depends on region proximity. Google Cloud has data centers in US, India, Malaysia, and network edge locations in China and Ukraine.	Pricing varies by region (e.g., US West Oregon mentioned). Latency depends on region proximity. AWS has regions in US, China, India, and recently launched in Malaysia. Ukraine is not a direct AWS region.	Pricing is pay-as-you-go. Latency depends on Azure region proximity. Azure has global data centers, including China, India, Malaysia, and network presence in Ukraine.	Data residency options available, impacting cost and latency. UiPath has data centers in India. Latency will depend on proximity to UiPath cloud regions or on-premise deployment.	Cloud OCR response time can vary. ABBYY has offices in Ukraine, and on-premise options reduce latency concerns. Cloud deployments will have latency based on server locations.
Strengths	Visual grounding, layout-agnostic parsing, rapid processing speed, strong focus on complex layouts and tables.	Comprehensive platform, strong integration with Google Cloud ecosystem, pre-trained processors for common documents.	High accuracy for OCR and data extraction, strong integration with AWS ecosystem, good for unstructured data.	Integrates with Microsoft 365, strong content management features, AI-powered content services.	Combines RPA with IDP, strong for end-to-end automation workflows, good for diverse document types.	Mature IDP solution, high accuracy for various document types including handwriting, flexible deployment options.
Weaknesses	Limited public information on handwriting support, multi-currency, and detailed regional impact. Offline mode unclear.	Can be expensive for high volumes, complex pricing structure, may require custom processors for specific needs.	Can be expensive for high volumes, may require custom extractors for complex documents.	Primarily for Microsoft 365 users, may have vendor lock-in, less focus on pure extraction compared to others.	Pricing complexity, may require significant RPA infrastructure, can be resource-intensive.	Can be expensive, may require professional services for complex implementations, cloud performance can vary.