

# Transforming healthcare operations through intelligent document capture



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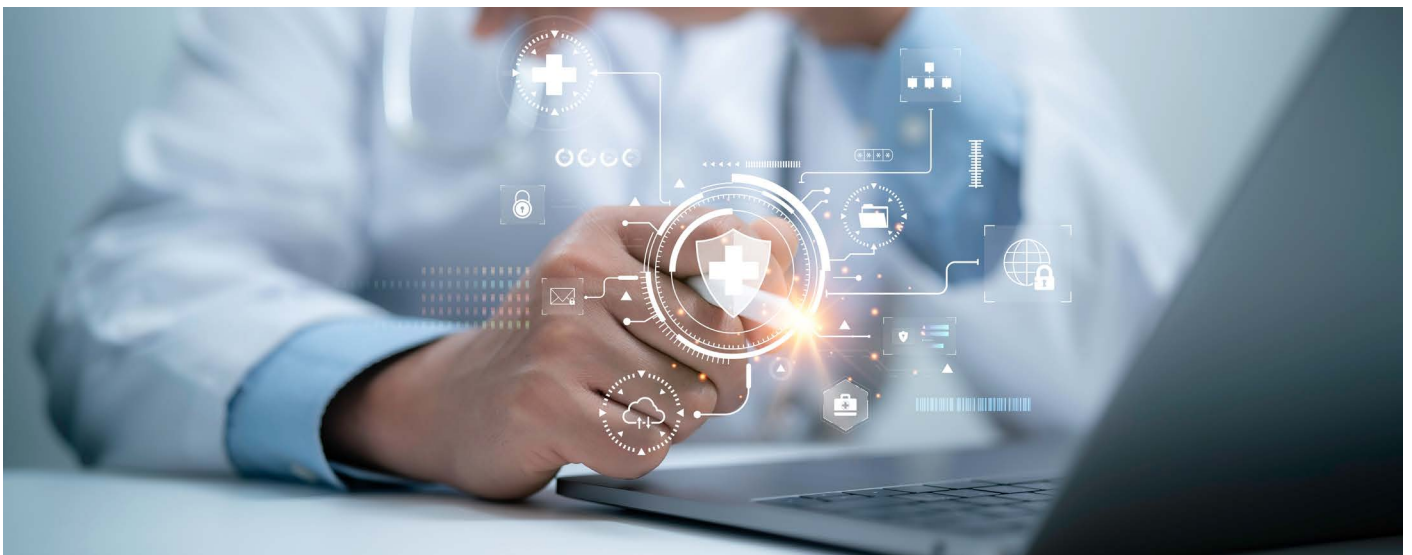
## Business backdrop

Healthcare organizations face an unprecedented convergence of operational challenges that demand immediate attention from executive leadership. They continue to struggle with inefficient, paper-based processes that create bottlenecks, increase costs, and compromise patient care quality.

Despite massive investments in electronic health records (EHR) and digital infrastructure, 81 percent of healthcare providers cite patient experience and patient journeys as a priority for digital transformation.<sup>1</sup> The sector's heavy dependence on fax communication—often considered antiquated in other industries—remains deeply entrenched due to regulatory requirements, interoperability gaps, and workflow legacy systems. Research indicates that healthcare organizations process millions of fax pages annually, with manual handling consuming significant administrative resources and introducing substantial risk for errors and delays.

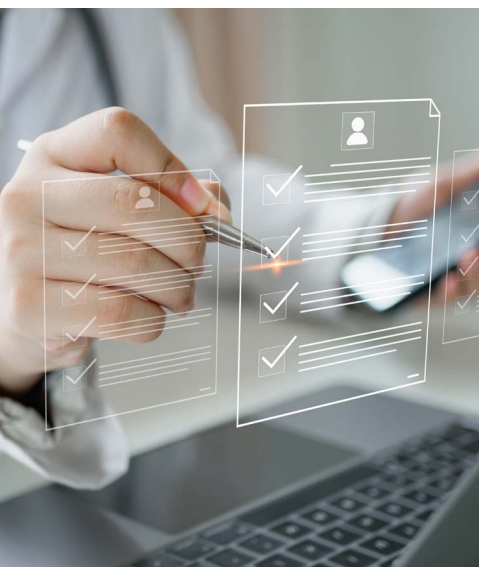
The financial implications are staggering. Administrative costs account for approximately 30 percent of total healthcare spending, with document processing representing a significant portion of this burden.<sup>2</sup> Manual processing of fax-delivered lab results, referrals, prior authorizations, and patient records creates processing delays that directly impact patient satisfaction scores, regulatory compliance metrics, and operational margins.

Furthermore, the regulatory landscape continues to intensify. Healthcare organizations must maintain comprehensive audit trails, ensure data security, and demonstrate compliance with HIPAA, HITECH, and emerging state privacy regulations. Manual document handling creates compliance gaps and audit vulnerabilities that expose organizations to substantial financial and reputational risks.



<sup>1</sup> Boston Consulting Group, *Performance and Innovation Are the Rewards of Digital Transformation*, December 2021

<sup>2</sup> The Commonwealth Fund, *High U.S. Health Care Spending: Where Is It All Going?*, 2023



## Vision for the healthcare organization

The transformative vision centers on creating an intelligent, automated document ecosystem that seamlessly captures, classifies, and routes healthcare documents while maintaining the highest levels of security and compliance. This future state eliminates the administrative bottlenecks that currently plague healthcare operations, enabling clinical staff to focus on patient care rather than document management.

In this optimized environment, incoming fax communications are automatically captured and processed through machine learning algorithms that understand medical terminology, document types, and organizational workflows. Continuous machine learning (CML) and large language models (LLM) automate manual content processes, enabling real-time classification of lab results, patient referrals, insurance authorizations, and clinical notes without human intervention.

The benefits extend far beyond operational efficiency. Organizations implementing intelligent document capture report significant improvements in patient satisfaction due to faster processing times and reduced administrative delays. Clinical staff experience enhanced job satisfaction as they spend more time on patient care and less time on administrative tasks. Compliance teams gain confidence through automated audit trails and consistent processing standards that eliminate human error variability.

Healthcare executives who have pursued this transformation report measurable ROI through reduced labor costs, improved patient throughput, and enhanced regulatory compliance positioning. The technology investment typically pays for itself within 18-24 months through a combination of reduced administrative overhead, decreased compliance risks, and improved patient experience scores that drive better reimbursement rates.

## The Strategic imperative: Moving beyond manual document processing

### Operational efficiency and cost optimization

Healthcare organizations processing thousands of documents daily through manual workflows face exponential scaling challenges. Traditional fax handling requires administrative staff to physically retrieve, sort, scan, and manually route documents to appropriate departments—a process that can take hours or days depending on document complexity and staff availability.

Automated data extraction from faxes and trigger workflows reduce processing time and support digital transformation. Modern capture technologies eliminate these bottlenecks by automatically ingesting documents from multiple channels including traditional fax machines, digital fax services, email attachments, and network folders. Machine learning algorithms trained on healthcare-specific document types can instantly classify incoming content and extract critical data elements such as patient identifiers, procedure codes, dates of service, and provider information.

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The operational impact extends to downstream processes. Lab results that are automatically captured and routed to the appropriate physician's electronic queue help them make clinical decisions sooner. Prior authorization requests processed through intelligent workflows reduce patient wait times and improve care delivery timelines. Insurance claim processing is more accurate and efficient when supporting documentation is automatically classified and attached to appropriate claim files.

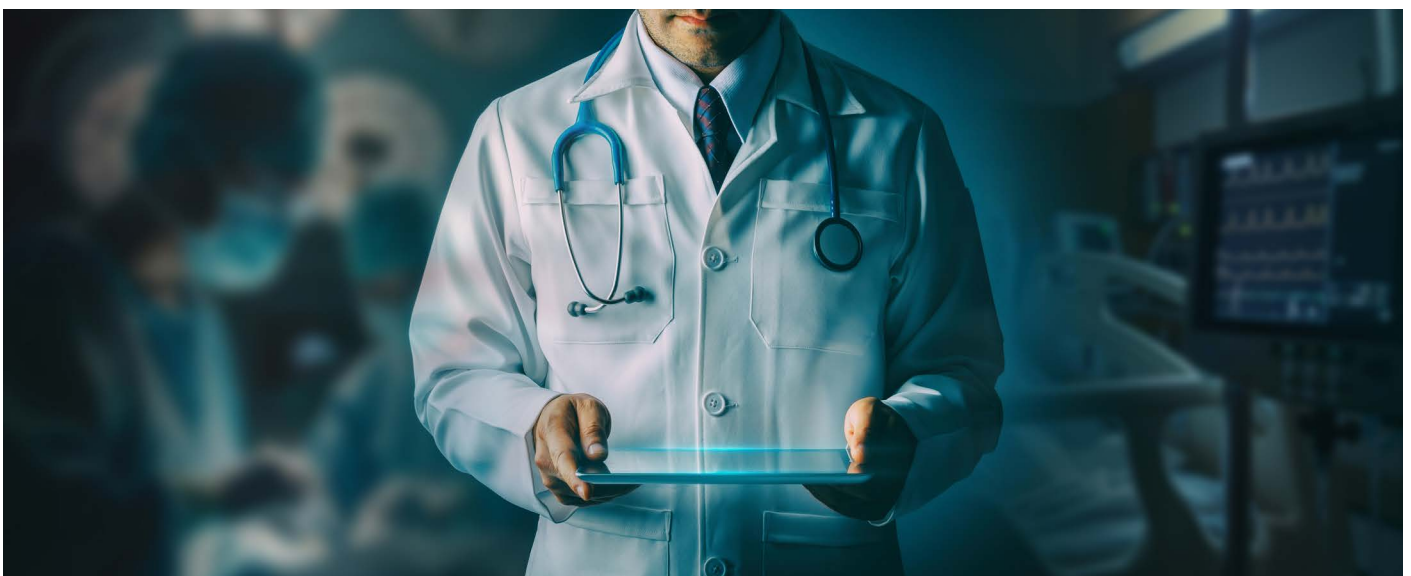
### **Enhanced patient experience through process acceleration**

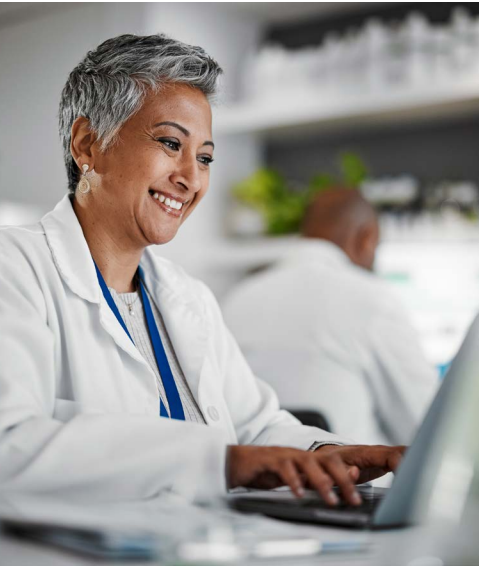
Patient experience has become a critical differentiator in healthcare, directly impacting reimbursement rates, competitive positioning, and organizational reputation. Document processing delays create cascading effects that compromise patient satisfaction at multiple touchpoints throughout the care journey.

Healthcare fax capture workflows start with capture which could involve scanning, faxing, removing an email attachment, or managing an inbound watch folder. When these processes are automated, patients can more quickly schedule appointments, receive test results faster, and experience fewer administrative delays during registration and discharge.

Consider the patient journey for specialty referrals. Traditional workflows require primary care physicians to print and fax referral documents, which are then manually processed by specialist offices, often requiring phone calls to clarify information or request missing documentation. Automated capture systems eliminate these friction points by ensuring complete, accurate document transmission and immediate routing to appropriate clinical staff.

A better patient experience translates directly to financial benefits through higher patient satisfaction scores, improved online reviews, and increased patient retention rates. Healthcare organizations with superior patient experience metrics typically command premium reimbursement rates and attract more patients through referral networks.





## Regulatory compliance and risk mitigation

Healthcare organizations operate under intense regulatory scrutiny that requires meticulous documentation, comprehensive audit trails, and absolute data security. Manual document processing creates numerous compliance vulnerabilities that expose organizations to substantial financial penalties and operational restrictions.

Automated systems provide a secure, compliant framework for managing sensitive healthcare data by automatically classifying and securing documents based on predefined criteria, ensuring patient information always remains protected with built-in audit trails and access controls. This automated approach eliminates human error variables that commonly create compliance gaps in manual workflows.

Audit preparation becomes dramatically simpler when all document handling activities are automatically logged with timestamps, user identifications, and processing actions. Regulatory auditors can quickly access complete document histories without requiring extensive staff time to reconstruct processing activities. This capability particularly benefits organizations subject to Joint Commission reviews, Medicare audits, or state regulatory examinations.

Data security compliance improves significantly through automated document classification that applies appropriate security protocols based on content sensitivity. HIPAA-protected health information receives automatic encryption and access restrictions, while administrative documents are processed through standard security protocols. This granular approach ensures compliance while maintaining operational efficiency.

## Scalability and future-state architecture

Modern healthcare organizations must design technology architectures that accommodate rapid growth, evolving regulatory requirements, and changing clinical workflows. Solutions support on-premises, hybrid, and private cloud environments to meet infrastructure and compliance needs, providing the flexibility necessary for diverse organizational requirements.

Cloud-based SaaS information capture solutions use continuous machine learning and large language models (LLMs) to automate content classification and data extraction, combining standard capture features such as optical character recognition (OCR) with powerful AI. This approach ensures that capture capabilities improve continuously without requiring internal IT resources for model training or system updates.

The architectural flexibility enables organizations to start with pilot implementations in high-volume departments and gradually expand to enterprise-wide deployment. Integration capabilities with existing EHR systems, practice management platforms, and clinical applications ensure that automated capture enhances rather than disrupts established clinical workflows.



## Implementation strategies for healthcare executives

### Comprehensive assessment and planning

Executive leadership must begin with a thorough assessment of current document processing volumes, costs, and compliance risks. This evaluation should quantify manual processing times, staff resources consumed, error rates, and patient satisfaction impacts attributable to document handling delays.

The assessment should identify high-impact use cases where automated capture can deliver immediate ROI. Common starting points include lab result processing, referral management, prior authorization handling, and insurance claim documentation. These workflows typically process substantial volumes with standardized document formats that respond well to automated classification and data extraction.

### Technology integration and change management

Successful implementation requires careful integration with existing clinical and administrative systems. Modern solutions automatically extract text and metadata from fax-delivered documents to support organization-wide information capture and intelligent document processing, ensuring seamless data flow to downstream applications.

Change management becomes critical as staff transition from manual to automated workflows. Clinical and administrative personnel require training on new processes, but the technology should simplify rather than complicate their daily responsibilities. Organizations report higher adoption rates when staff understand how automation eliminates routine tasks and enables focus on higher-value activities.

### Measuring success and continuous improvement

Healthcare executives must establish clear metrics for measuring automation success. Key performance indicators should include document processing time reduction, staff productivity improvements, patient satisfaction score increases, and compliance audit performance. Financial metrics should track ROI through reduced administrative costs, improved patient throughput, and enhanced reimbursement rates.

Continuous improvement processes should leverage machine learning capabilities to expand automation scope over time. As systems learn organizational workflows and document patterns, they can handle increasingly complex scenarios with minimal human intervention.

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## Next steps: Accelerating healthcare document transformation

Healthcare executives ready to eliminate document processing bottlenecks should consider three progressive approaches to implementation:

**Low commitment option:** Pilot automated capture implementation in a single high-volume department, such as radiology or laboratory services. This approach enables organizations to demonstrate ROI and build internal expertise before expanding to additional areas. Implementation typically requires 30 to -60 days and provides immediate processing time improvements for targeted workflows.

**Medium commitment option:** Deploy enterprise capture capabilities across multiple departments with integration to existing EHR and practice management systems. This comprehensive approach addresses document processing throughout the patient care continuum and typically delivers ROI within 12 to 18 months through significant administrative cost reductions and improved patient experience scores.

**High commitment option:** Implement organization-wide intelligent document capture as part of a broader digital transformation initiative. This strategic approach includes advanced analytics, workflow optimization, and comprehensive staff training programs. Organizations pursuing this path typically achieve 25 to 40 percent reductions in administrative processing costs and substantial improvements in patient satisfaction metrics within 24 months.<sup>3</sup>

Each approach addresses specific business challenges while building the foundation for long-term operational excellence. The key is selecting an implementation scope that aligns with organizational priorities, available resources, and strategic transformation timelines.

Healthcare's future belongs to organizations that eliminate administrative inefficiencies to focus resources on patient care excellence. Intelligent document capture represents a proven pathway to achieving this vision while delivering measurable ROI, enhanced patient experience, and strengthened regulatory compliance.

## Contact



Scott Lundstrom  
Sr. Industry Marketing Strategist

Email: [slundstrom@opentext.com](mailto:slundstrom@opentext.com)

<sup>1</sup> Cureus, *Improving Hospital Efficiency and Cost Management: A Systematic Review and Meta-Analysis*, 2024