



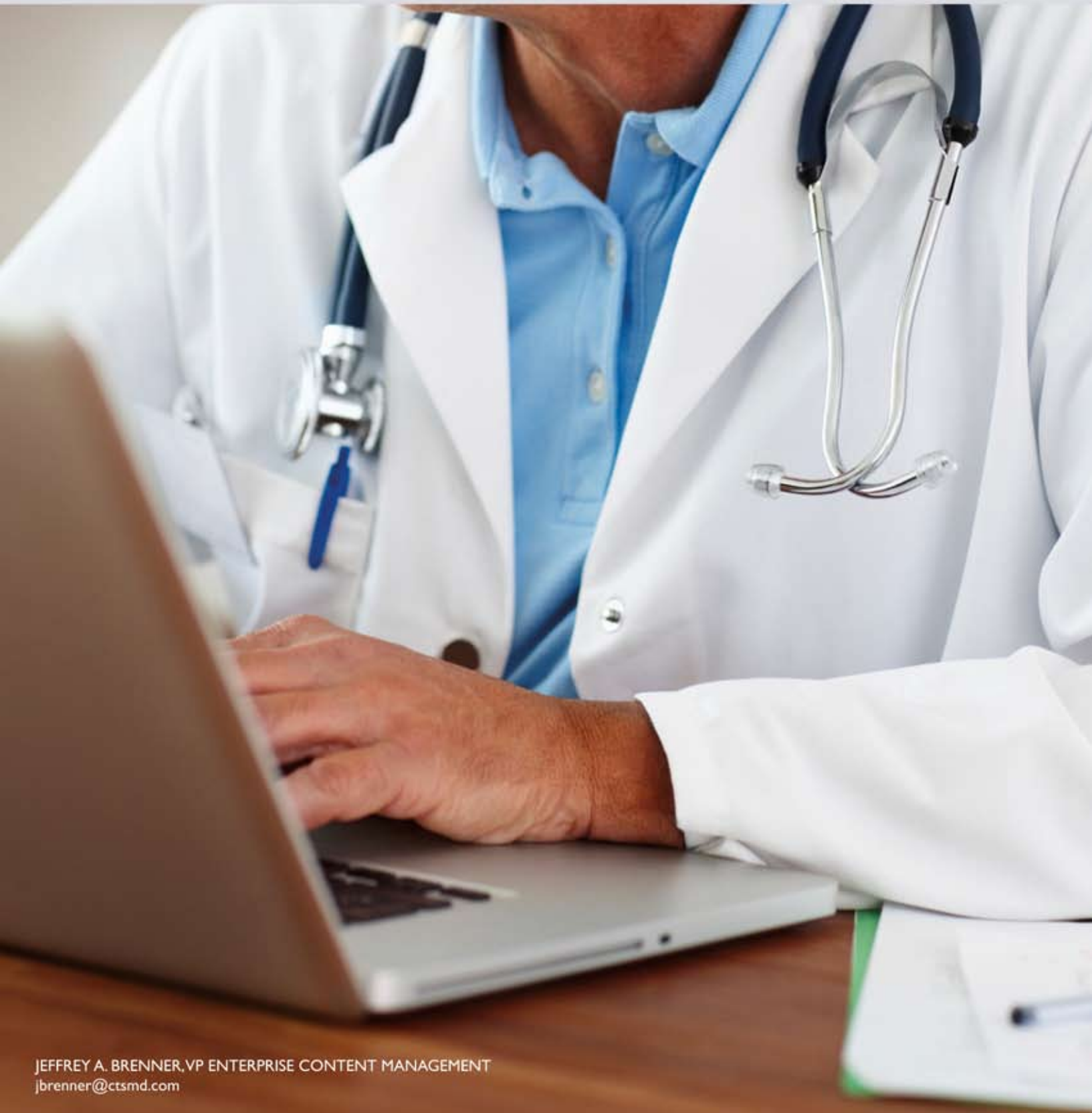
Computer Technology Services, Inc.

*Enhancing Human Performance*

2011

**TOP 53**  
PROGRESSIVE  
COMPANIES  
BY GAZETTE

## ELECTRONIC DOCUMENT MANAGEMENT SOLUTIONS



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# TAKING THE PAPER OUT OF PAPERWORK



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CTS IS A PREMIER ELECTRONIC DOCUMENT MANAGEMENT PROVIDER OF AFFORDABLE, HIGH QUALITY PRODUCTS AND SERVICES FROM IMAGING TO DOCUMENT RECOVERY.

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CTS ELECTRONIC DOCUMENT MANAGEMENT SERVICES WILL IMPROVE YOUR CUSTOMER RELATIONS BY MAKING ALL VITAL INFORMATION AVAILABLE AT YOUR DESK TOP.

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CTS WILL PROPOSE COST EFFICIENT SOLUTIONS TO COVER THE COMPLETE LIFECYCLE AND SCOPE OF DOCUMENTS AND MATERIALS.

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CTS EMPLOYS MULTIPLE STRATEGIES USING ADVANCED SCANNING SOFTWARE AND STATE OF THE ART IMAGING EQUIPMENT APPROPRIATE TO YOUR NEEDS, WHETHER IT BE SIMPLE SCANNING WITH A SINGLE REPORT OR SOPHISTICATED HIGH VOLUME SCANNING WITH SOPHISTICATED SEARCH AND ANALYSIS.

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CTS WILL INTERFACE YOUR ELECTRONIC DOCUMENT SOLUTION WITH YOUR OTHER AUTOMATED APPLICATIONS.

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CTS DOCUMENT IMAGING SPECIALISTS ARE TRAINED IN THE CAREFUL AND CONFIDENTIAL HANDLING THROUGHOUT THE LIFECYCLE OF ALL YOUR DOCUMENTS.

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CTS STAFF ARE EXPERTS IN THE ASSESSMENT OF BUSINESS REQUIREMENTS THAT WILL ACCOMMODATE YOUR PREFERRED FORMAT.

## WHY DO YOU NEED SCANNING?

1. Do your clients complain of slow service?
2. Does your staff always have the information they need at their finger tips to serve your customers?
3. Is your office space cluttered with paper and filled with file cabinets?
4. Do you struggle with managing today's multiple communication formats like letters, emails, snail mail, faxes, and forms?
5. Do your finance officers bill timely and accurately?
6. Do your HR files contain all the required documentation to meet payroll and legal requirements?
7. Would a hurricane put you out of business?
8. Can you efficiently analyze the information stored in all those paper documents to improve your performance, establish efficient work flows and increase your profits?
9. Do you know what you can discard? Do you know where it is? Are you paying unnecessary costs to store obsolete documents?
10. Do your records meet all your legal compliance requirements for information and access?

## ELECTRONIC DOCUMENT MANAGEMENT (EDM) REPORT CARD

- Assessing characteristics of an EDM solution.
- Is the scanning or digitizing process fast enough?
- Is the retrieval process fast enough?
- Is the quality of the image clear and accurate?
- Can notations be made on digitized record?
- Is the indexing capability robust and flexible enough for my needs?
- How will systems accommodate annual changes to indexing?
- Are products and services scalable to accommodate increases in volume?
- Are products and services scalable to accommodate enhancements such as other expanded sources of information?
- How will implementation accommodate any digitizing of prior period records?
- How will EDM solutions be interfaced with related automated applications?
- What reporting capabilities will be required at implementation? Within three years?
- What resources will be assigned to develop and implement workflows?
- Is all required hardware included in solution? Maintenance contracts?
- Will EDM records be incorporated into crisis or disaster recovery planning?
- Are security features adequate to protect all media forms of information in the life cycle until destruction?



## WHAT ARE DOCUMENT MANAGEMENT AND RECORDS MANAGEMENT?

Document Management software controls and organizes documents and the content of documents throughout your enterprise by electronically capturing it, indexing for proper placement in a repository, applying workflows, and coordinating with information retrieval systems.

Records Management is the process by which you will assign a life cycle to business information and documents from creation to final disposition or destruction.

CTS Electronic Document Management Services Include:

- Front-end document conversion and scanning services
- Large volume backlog projects
- Interface building with existing functional automation applications
- Off-line document storage on multiple media
- Document imaging and scanning hardware and software
- Expert installation and follow up support
- OCR/ICR and forms processing
- Extensive need assessment for large enterprise, multi-level EDM solutions
- Project management
- Single phase or multiple phase solutions
- Training for basic use
- Training in sophisticated techniques to fully exploit electronic imaging tools to improve management, customer service and compliance
- Web-enabled document retrieval systems

## WHY CTS?

- CTS employees are professionals with decades of document imaging and records management experience.
- CTS has successfully deployed document imaging in multiple settings.
- CTS has employees certified in multiple imaging software products.
- CTS has employees to interface your imaging solutions with your existing applications.
- CTS is a small business with big talent.
- CTS is on GS Schedule 36 and GS Schedule 70
- CTS is a registered Maryland Small Business Enterprise
- CTS represents multiple products and is knowledgeable in their deployment
- CTS represents only proven quality products
- CTS offers services to support your needs from needs assessment through to full deployment



## CASE STUDY | COMMERCIAL: BIOTECHNOLOGY

*Document Imaging System Expedites and Improves Clinical Trial Process and Product Approval*

Clinical trials are conducted to allow safety and efficacy data to be collected for health interventions (e.g., drugs, diagnostics, devices, therapy protocols). These trials can take place only after satisfactory information has been gathered on the quality of the non-clinical safety, and Health Authority/Ethics Committee approval is granted in the country where the trial is taking place.

Depending on the type of product and the stage of its development, investigators enroll healthy volunteers and/or patients into small pilot studies initially, followed by larger scale studies in patients that often compare the new product with the currently prescribed treatment. As positive safety and efficacy data are gathered, the number of patients is typically increased. Clinical trials can vary in size from a single center in one country to multi-site trials in multiple countries.

Due to the sizable cost a full series of clinical trials may incur, the burden of paying for all the necessary people and services is usually borne by the sponsor who may be a governmental organization, a pharmaceutical, or biotechnology company. Since the diversity of roles may exceed resources of the sponsor, often a clinical trial is managed by an outsourced partner such as a contract research organization or a clinical trials unit in the academic sector.

### The Challenge

CTS was charged with creating a way to access clinical trial data quickly and efficiently. To convert the paper clinical trial into a digitized format that would be easily accessible to anyone wanting to research the results.

### The Criteria

Cytomedix wanted a solution that could be referenced at the company headquarters as well as the other clinical sites. They also wanted the documents to be easily searchable.

### The Solution

CTS met with Cytomedix staff to come up with a taxonomy that would represent what the investigators would look for in a clinical trial. CTS utilized Kofax Capio® as a way of developing a document management solution for monitoring the clinical trial process.

Kofax Capio® key features:

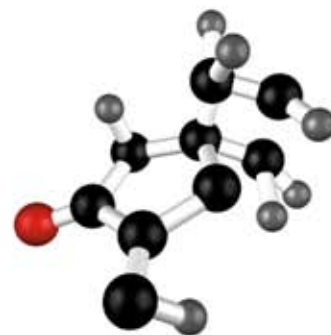
- Document Management Panel
  - Hierarchical view of entire document library
  - Easy controls for selecting scanner settings
  - Facilitates creation & organization of document library
  - Facilitates search and retrieval of documents
- Page Panel
  - Provides a robust viewing area
  - Facilitates display options of retrieved documents/images

CTS came up with the following process to capture the clinical trial information:

1. Document Preparation – Removal of all foreign material, including staples, paper clips, post-it notes, rubber bands, etc.
2. Scan – one Fujitsu Duplex scanner was used to scan the documents that comprised the clinical trial records.
3. Recognition – Image Clean-up, bar code identification
4. Validation – The document index is validated based on the indexing schema.
5. Release – After the scanned document

### The Result

By implementing an electronic document management system, Cytomedix significantly enhanced its' Regulatory Affairs Department's ability to locate information from the voluminous files to better respond to internal stakeholders, as well as the regulatory body responsible for the product review leading to government consent to go to market.



## CASE STUDY | COMMERCIAL: LEGAL

### *Document Imaging System Improves the Analysis of Chondrolysis*

The destruction of articular cartilage is known as chondrolysis. While chondrolysis is rare anywhere in the body, it has been most common in the hip when conditions such as birth defects cause the bones in the hip to unnaturally press against each other. Prior to the 1990's, chondrolysis of the shoulder was virtually unheard of. However, as doctors began experimenting with new surgical techniques and instruments, reports of shoulder chondrolysis began to appear. The first were reported after surgeons had used a type of dye – gentian violet – to better see parts of shoulder anatomy during surgery.

When laboratory experiments were then performed to determine what effects gentian violet had on chondrocytes, it was discovered that the dye was toxic to the cells and could kill chondrocytes.

When articular cartilage in the shoulder is destroyed, it leaves bone to rub against bone. At first this causes inflammation and pain in the bones. Later it leads to destruction of the surface of the bones. A shoulder transplant becomes the only treatment with a possibility of relieving the pain and allowing use of the shoulder. A cause of chondrolysis is the use of a pain pump following any type of arthroscopic surgery in the shoulder.

#### The Challenge

CTS was charged with creating a tool with which Innovative Science Solutions (ISS) could analyze surgical procedure(s) that were performed in which the outcome resulted in a diagnosis of chondrolysis.

#### The Criteria

ISS wanted to have a tool in which both the law staff and science staff could look at the information to make decisions from. The tool needed to be developed so that it could be used at any geographic location. The tool needed to support the ability for Medico-Legal Nurses to code information from geographically dispersed sites across the United States.

#### The Solution

CTS worked with ISS to come up with an Entity Relationship Diagram (ERD) that would represent the information that needed to be collected. CTS used this ERD to create the database utilizing ASP.NET that would house the information or metadata and secure links to the digital patient medical files. A secure web application was developed to process patient information. This application would allow the patient information to be coded by our Medico-Legal-Nurse team.

- Record conversion to images
- File review/metadata discovery
- Enabled secure web search of DB
- Customized analytical report feature

#### The Result

By implementing an electronic document management system, Innovative Science Solutions is able to analyze patient data to develop impressions as to the causality between the patient surgery and a diagnosis of chondrolysis.



## CASE STUDY | GOVERNMENT: REGULATORY

### *Document Imaging System Expedites and Improves Internal Processes and Stakeholder Relationships*

The Freedom of Information Act (FOIA) and the Internet combined to affect government agencies in a very profound way. It placed a clear requirement on agencies to make information available to the Public on request. This Civilian Agency is charged to protect the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics, and products that emit radiation. It is also responsible for advancing the public health by helping to speed innovations that make medicines and foods more effective, safer, and more affordable; and helping the public get the accurate, science-based information they need to use medicines and foods to improve their health.

#### The Challenge

CTS was charged to track and monitor all post-marketing surveillance adverse events reports about special nutritional products such as dietary supplements, medical foods, and infant formulas. The charge included a requirement to increase the efficiency and accuracy of responding to FOIA requests without compromising the privacy of the records. Due to the nature of information contained within the Charts, all data needed to be redacted prior to releasing the information under FOIA to requestors such as the media, Congress, law firms, or the general public. The historical process utilized was paper-based, cumbersome, was subject to inadvertent duplication of effort, and fell short of supplying all comprehensive data contained within the large paper file repository.

#### The Criteria

The Agency's decision to purchase InputAccel was impacted by three requirements. They needed a system that could:

- Perform high-volume document capture
- Write custom PCFs (Process Control Files) that specify how documents flow through the system
- Support multiple scanner types

While the aforementioned criteria were the major reasons the Agency chose to use Input Accel, the ability to also use "plug and play" modules was something considered favorable. Captiva has partnered with more than 35 imaging component vendors to ensure customers have all the features and functionalities they may require.

#### The Solution

CTS leveraged experience gained on another data capture project for a different Agency organizational unit and developed a similar scanning, indexing, recognition, and database release mechanism, with an additional functionality-redaction. The CTS provided solution supported efficient searching for documents and facilitated retrieval of a redacted file rendition to transmit to the FOIA requestor or publish on an EFOIA website.

The Input Accel system uses the following process:

- **Scan** - four Fujitsu Duplex scanners are used to scan the documents, comprised of medical records, legal documents, product labeling, and sample analyses.
- **Image Rotate Utility** - This feature allows the pages to be automatically rotated to portrait format.
- **Image Enhancement** - Pages are sent to this module for noise removal and deskew, and checked for Agency barcodes. These barcodes determine what kind of document/section of the chart is being processed. Pages without barcodes are considered to be continuation of the last document.
- **Multi Utility** - This utility modifies the Batch Tree structure by inserting levels in the document set based on separator pages or barcodes.
- **Quality Assurance** - Because a large number of pages are processed, it is not cost effective for QA operators to look at every page. Pages are spot checked for bent pages and lines every 'nth' image based on document type.
- **Annotation Tool Indexing** - Documents are reviewed to detect Personally Identifiable Information (PII) including records about individuals requiring protection under the Privacy Act or the Health Insurance Portability and Accountability Act (HIPAA). The annotation tool places a permanent "mask" over the sensitive information in the redacted file rendition released to the database.
- **Rescan** - A Fujitsu Duplex Scanner is used to rescan unclear images and rejected pages.
- **Export** - The data is then exported to an Oracle database system.
- **Reporting Function** - Information is collected so that the system administrator can analyze the productivity and throughput of the scanning system

#### The Result

By implementing an electronic document management system, the Agency has positioned itself to improve its rating in the current President's Management Agenda Scorecard. It also enables its staff to perform more efficiently and to provide better customer service to its stakeholders.



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CTS is located near Rockville TownCenter & Rockville Metro Station