Advanced Document Classificaion and Data Extraction Solutions

Large U.S. oil and gas producer reduces operating costs and gains huge competitive advantage by capturing millions of data fields using Axis AI document classification and data extraction solution.

INTRODUCTION

One of the largest U.S. producers of oil and natural gas, focuses on discovering and developing their large and geographically diverse resource base of energy assets. By using Axis AI, document classification and data extraction solution, they were able to reduce the operational costs of capturing information from literally a million documents related to the land acquisition or leasing of energy resource-rich properties. Before the implementation of Axis AI, Axis's flagship document imaging solution, their only option was slow, error prone, hand-keying of the complex land and title documents.

BACKGROUND

Energy companies are always on the quest researching new sources for minerals, oil and gas. When they determine an area with potential for these resources, they need to acquire rights to operate on the land holding these valuable commodities. Moreover, time is of the essence, as their competitors are also interested in leasing the same parcels of land; the first company to contact the mineral owner has a huge advantage in securing the lease. Knowing who owns the mineral rights is not as easy as you would think. Researching who holds the legal rights to the minerals, surface or both (ownership can very often be split) can be very challenging. There are public records on file, but they are generally not available online and require physical trips to the county courthouse to

manually research ownership. The courthouses store the physical paper record books in vaults, and in many cases, these documents can go back over a hundred years.

Traditionally, energy companies would employ full-time researchers (Landmen) to visit a courthouse and spend days, if not weeks or months, scrutinizing thousands of documents to determine who has legal title to the mineral and surface rights. This tedious process is not only extremely time-consuming, but it is also very expensive. In a depressed energy market, these organizations need to cut spending – not dump funds on staff that can spend months in basements.

THE BUSINESS PROBLEM

It is already challenging to find the correct documents these companies need to review, but once discovered, the critical information needs transformation into actionable data. This data does not exist in a single document in a familiar form-like format. For example, the legal aspects of a property (Legal description of the property, Grantor/Grantee, Lien, etc.) span an array of records including liens, court judgments, deeds, titles and property maps to name just a few of the document types. It takes an expert to know what to read and where to find it.

With Axis AI, organizations have a superior alternative to manual re-keying or the costly and ineffective results of other unstructured data extraction solutions.

Using advanced optical character recognition, NLP and machine learning, the system would learn by example. As more documents processed through the system, the extraction results increased in accuracy.

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300 S. Harbor Blvd. Suite 910

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TECNNOLOGY PROBLEM

For the client, to make things worse, these documents are inconsistent in format, layout and design, changing from county to county, state to state. Your typical document imaging scanning solution designed for forms, using traditional OCR technology, does not have the intelligence to read and decipher these complex layouts. In many cases, the key fields, like property owner, could be embedded within a sentence anywhere on the page.

The only solution available for this challenge was hand-keying of the information from the documents. This also presented another set of difficulties since the keying operators needed to understand the materials, and becoming a subject matter expert took considerable training. Hand-keying operations tend to have high employee turnover and to keep these SME's on staff is not easy. Mistakes on data elements (wrong data or fields keyed) often occurrs due to human error and/or lack of training.

For this particular client, data entry errors and delays in document processing were not acceptable due to the competitive nature of the O&G industry. Our partner providing the manual-keying solution was about to lose the contract due to delays and data quality. They needed a more cost efficient, accurate solution that could handle the huge volume of information that needed to be processed.

SOLUTION

Knowing Axis offered a new advanced document classification and data extraction solution designed for these complex, unstructured document formats, our partner suggested the client try this advanced, revolutionary solution. By applying a technology known as Natural Language Processing (NLP), the Axis AI software examines the documents just like a human. NLP can recognize patterns, verbs, nouns and literally understand the document context and content – in a very similar manner to how a person reads and finds critical information within a document.

Axis AI's NLP first classifies the documents by looking for characteristics in the language of a record. Once the documents are classified, the software then captures the various required fields from the documents. In some cases, it could simply be a property owner's name or street address, but in another instances, a complete property description would also be required. This property description could be a simple Lot, Block Section, Township and Range, or a more complex Metes and Bounds description that can be whole sentences or paragraphs of information spanning one or more pages.

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Within two weeks of the initial discussion, the system had been setup and configured. Sixty days into the engagement, the operation was in full production, processing around 130,000 documents per month. Upon completion of the project, over 1,000,000 documents had been handled – capturing tens of millions of critical index fields and data elements.

BENEFITS

Axis AI provided a strategic solution to an extremely challenging document capture scenario. Not only did the solution work, but it also saved the client considerable money – the entire operation came in at half the cost of the hand keying operation. In addition to being more cost-effective, the quality was exceptional reaching a 99.6% accuracy on index values. This exceeded the original service level agreements of the initial indexing provider.

Axis AI saved the day for the partner who almost lost the contract. As the partner Director noted, "This was a game changer." Now they are offering a new approach to capture solutions for the Oil and Gas industry. They can now provide a superior solution to traditional key-from-entry operations and do it at a lower cost. It offered the client a competitive advantage, and the partner could now recommend the same solution to customers in other areas outside of the original client's market.

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