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How a large bank saved thousands of hours of manual labor by automating credit agreement analysis

SemanticPro Extract & Analyze
COMMERCIAL BANKING CASE STUDY

CUSTOMER: International bank exploring ways to improve efficiencies through automation

GOAL: Improve credit risk assessment by automating the classification and interpretation of covenants

CHALLENGE: The complexity in language and structure of wholesale credit agreements makes automation difficult

SOLUTION: The bank leveraged the meaning-based capabilities of Cortical.io SemanticPro to extract key information from credit agreements and automate the classification of covenants

RESULTS:

- Extract the covenant structure out of loan agreements at the press of a button

- Better and quicker appreciation of wholesale credit risk for their credit portfolio

- Ability to predict workflows and capital allocation for different business lines

THE GOAL:

The bank's goal was to find an appropriate extraction tool to help automate the risk assessment process and, provided the quality of results is sufficiently reliable, reduce the operational risks of wrong covenant assessments.

Meet **Martha, VP Strategy & Emerging Technologies** at a Tier 1 bank in the US. Martha's main goal is to identify areas where automation can improve process efficiencies in the organization. She continuously scouts new technologies to keep abreast of developments on the market and conducts internal interviews with line-of-business owners to assess optimization potentials.

Martha saw a huge opportunity for **Rick, Head of Wholesale Credit,** whose team spent a lot of time thoroughly reviewing financial information in order to assess credit risks. The covenants are particularly affecting the lending conditions and need special attention. The borrowing mechanisms depend on many different variables which makes it difficult to calculate the correct pricing of transactions involving huge amounts of money.

Assessing covenants is a labor-intensive task that binds human resources and implies huge operational risks for banks.

THE CHALLENGE:

The complexity in language and structure of credit agreements makes automation difficult.

Wholesale credit agreements are complex, 100+-page-documents that are very bespoke because banks use different lending systems. Especially covenants use **highly specific, use-case related formulations.** Some extractions are straightforward, and the values can be extracted "as is" (no inference necessary), for example: named dates, commitments, rates, parties. Others are more challenging and require **fine-grained distinctions between options or covenants** (eg redeem deal options, termination options). Here an automation system has to comprehend domain logic based on document structure and relations of extracted items.

Pricing-related tables contain many different parameters (applicable margin, interest payment schedules, commitment tables) and it is extremely difficult to automate the extraction of pricing information.

This is why the review of credit agreements was still done manually, which cost a lot of time and money to the bank, not mentioning the high error rate of such a mundane task.

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THE SOLUTION:

Leverage the meaning-based capabilities of Cortical.io SemanticPro to extract key information from credit agreements and automate the classification of covenants.

How Cortical.io SemanticPro streamlines your extraction process
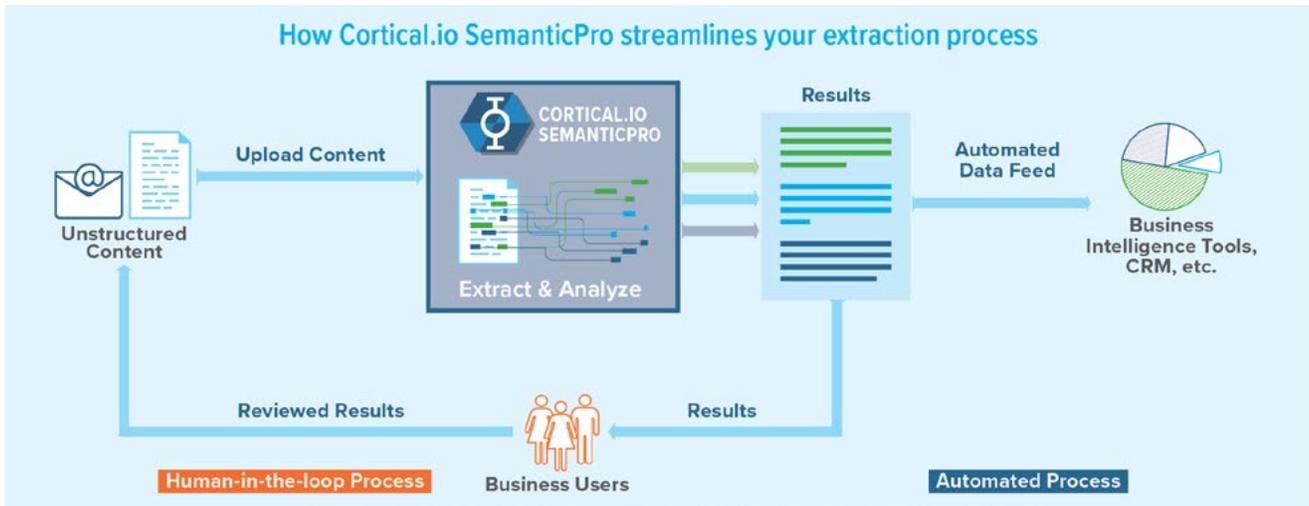
After having looked at the different solutions on the market, Martha decided to test **Cortical.io natural language processing capabilities** and apply them to the analysis of credit agreements. The main reason why she kicked-off a project with Cortical.io was the **easiness and speed** with which the system could be adapted to Rick's use case: **only a limited amount of example credit agreements (less than 50)** was needed for training the system. This greatly limited both the initial investment and overall risk of this project.

After an initial base knowledge phase where the system had learnt from relevant source material in an unsupervised manner, two loan officers from Rick's team provided input by reviewing a small set of documents. After that, the **system kept incorporating feedback and created more accurate models** (continuous learning, aka human in the loop).
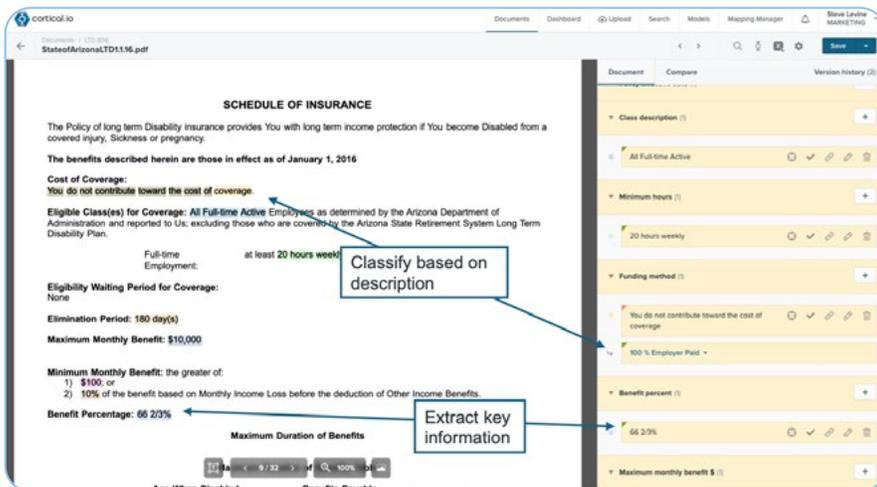
SemanticPro automatically interprets and classifies information from complex documents

Both Martha and Rick were impressed by the **short time to get high quality results.** After just a few weeks from the start, Rick's team could automatically:

- extract key information from different types of credit documents such as loan agreements, notes, amendments, Credit Approval Memorandums (CAMs), etc.
- classify covenants
- cluster related documents to create a complete transaction overview
- identify the covenant types and assess credit risk

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THE RESULTS:

With the help of SemanticPro, Rick and his team were able to extract the covenant structure out of loan agreements at the press of a button. They got a much better and quicker appreciation of credit risk for their wholesale credit portfolio. As a side benefit, they were able to predict workflows and capital allocation for different business lines.

Overall, Cortical.io SemanticPro Extract & Analyze both simplified and accelerated the processing of credit documents by making them automatically available to authorized users and business processes based on the information extracted. Rick also appreciated the fact that the pilot solution could be integrated with the wholesale loan software, creating even more synergies in terms of data insights and business processes.

Martha was successful in demonstrating that intelligent automation can improve process efficiencies by reallocating human resources to more strategic tasks and reducing operational risks. She received additional budget to investigate other automation use cases like review of ISDA agreements, bond indentures, comparison of term sheets of stock exchanges, classification of SWIFT messages, and more.

Thousands of hours of manual labor were saved and operational risks drastically reduced with SemanticPro.

THE SEMANTICPRO DIFFERENCE:

- ● **Short time to results:** a small set of examples sufficed to kick-off the system
- ● **Highly accurate results** for complex extractions and classification tasks reduced operational risks
- ● **Easy integration** with existing software simplified workflows

For more information about this case study and Cortical.io solutions, visit
www.cortical.io or email **info@cortical.io**

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