

**Artificial Intelligence and the  
Machine Learning Revolution  
in Finance:**  
**Cogent Labs and the Google  
Cloud Platform**

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**Introduction to Artificial Intelligence and its  
Applications in Business**

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## Table of Contents

<b>Question:</b> .....	<b>2</b>
<b>Executive Summary</b> .....	<b>3</b>
<b>Discussion 1:</b> .....	<b>3</b>
<b>Discussion 2:</b> .....	<b>5</b>
<b>Conclusion:</b> .....	<b>7</b>

## Question:

The case also states that “he (Malkin) knew that Cogent Labs needed to find both a hook and a barrier – a way to bring the proprietary financial service data and the cloud computing resources together to help better serve Cogent Lab’s financial service clients, while at the same protecting their own intellectual property and ability to scale in the future.” What are the prospects of Cogent Labs to accomplish this task? Do you think that they have the future or is it too difficult for them to survive between the two camps (the financial services and the cloud computing companies)?

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## Executive Summary

*The world of Finance embraced Artificial Intelligence and Machine Learning viewpoints at the bottom most position and Google with its cloud platform was likewise novel amongst the other cloud infrastructure providers. Impeccable timing for companies like Cogent labs, an AI based software firm in Tokyo, to make use of this circumstance by reaping the full benefits of cloud computing infrastructure from Google - an innovation centric enterprise, whose services are rather luxuriously priced, and provide ML based applications to Financial companies. Cogent labs, with its peculiar focus of integrating current academic research to crack realistic business challenges launched its first product Tegaki with the sole intention of closing the gaps between Artificial Intelligence cloud supporters and the end-customers (financial firms) after embracing the Google Cloud Platform. The company transitioned from an entrepreneurial-driven to management-driven firm with their Natural Language Processing based flagship product, Tegaki which stimulates non-strategic business decisions. This particular case study bears witness to the fact that companies like Cogent labs (start-up firms) are an integral part of the market ecosystem due to their niche technical and domain expertise, distinctive mission and are definitely capable of reaching greater heights in the foreseeable future.*

## Discussion 1:

“The difference between human intellect and Artificial Intelligence is comparable to the difference between chimpanzees and humans”, says the CEO of three companies: Tesla, Neuralink and SpaceX, Elon Musk. Artificial Intelligence can be dated back to 1956 and was coined by John McCarthy. Implementing logical models thereby incorporating human intelligence to machines was the central idea behind the rise of artificial intelligence, but in recent times AI’s goal has been to surpass machine intelligence and thus implicitly to become a basis for technology differentiation. Companies started using AI for obtaining tangible results and winning competitive advantages causing an explosion to other accompanying technological advancements required to run the computationally intensive models, example cloud computing infrastructure. In this interconnected web, companies like Cogent labs, which focused on developing proprietary Machine Learning (imparting self-learning ability to machines without being explicitly programmed) applications to the Finance sector on cloud infrastructure faced a challenging question, What is the future of these firms?

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If Cogent Labs intends to solve real-world problems of the financial firms then a large amount of relevant data and good cloud infrastructure must be readily available. Replicating the sophisticated and proprietary datasets and acquiring enough computing infrastructure was impractical for this establishment. To fulfil the approach, an option would be to merge/collaborate with any of the cloud providers for customized offerings and expertise or increase their expenditure on cloud services. This active cloud user went on to accept proposals from Amazon Web Services and Google Cloud Platform since each provider had exclusive advantages to offer. Cogent Labs knew that “No matter how good your models are, you need to have a good cloud architecture”, hence didn’t compromise on the foundations and secured a place in the ecosystem.

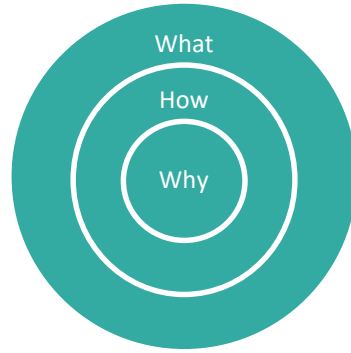
While Amazon Web Services brought increased technical cloud expertise, lower costs for Graphical Processing Units and relational databases and dedicated server facility, Google offered Google Cloud Platform’s superior logging tool, native support of Kubernetes, low costs for computing instances and the most importantly affordable access to “BigQuery”, an enterprise level data warehouse for performing analytics.

Since the alliance (with Google Cloud Platform, which fetched more pros than AWS and was one of the major service providers), Cogent Labs used Google’s reach to lure financial firms into partnering with them. Google Cloud Platform implicitly brought the below advantages:

1. Good security and Compliance tasks knowledge  
Secure transit, state of the art physical security systems etc. One great example would be European Union’s General Data Protection Regulation
2. Huge open source libraries. These open source libraries were good for legacy systems in banking technology.
3. Google’s innovation and reputation for excellence.  
e.g. DeepMind which builds innovative learning models by leveraging AI with Google’s proprietary data
4. Lower transition costs (from other platforms to Google)

Google was also benefitted by this partnership since financial companies lacked the required skillset to take best advantage of Google’s Cloud Platform, Cogent Labs offered them suited artificial intelligence enabled solutions on GCP platform in order to aid their businesses along with the required technical expertise.

The above strategy adopted by Cogent Labs is termed as “Purpose over Profit” by Simon Sinek. To begin with, the company prioritized its path to meet the objectives and goals over income and earnings with the principle of ‘how’ and ‘why’ you do your job, instead of ‘what’ you do.



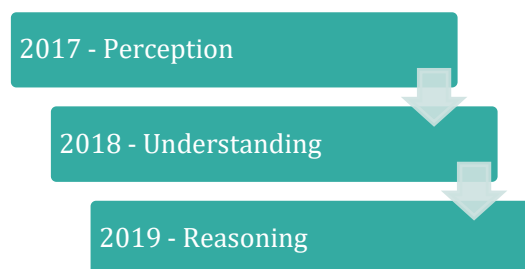
*Figure 1. The Golden circle*

In this fashion Cogent labs, high-tech cloud computing providers and financial services are in peaceful co-existence and neither one of them is looking forward to devour the other.

## Discussion 2:

Cogent Labs, the company that brought AI in action was founded by Jun linuma and Eric Whiteaway in October 2014 and later, David Malkin joined as an Artificial Intelligence architect considering the objective and goals of the company.

In 2017, the company started growing and the focus became narrower i.e. to assimilate cutting-edge academic research into real-world business solutions (obviously for finance). Undoubtedly, the company started exploring and implementing new research, understanding actual AI needs for consumers and enterprise market and developing scalable application infrastructure to create an overall new strategy for Cogent.



*Figure 2. Overall AI strategy of Cogent's flagship product, Tegaki*

“Perception led to understanding which ultimately leads to reasoning” was the new mantra for the company. The later months of the year 2017 owned the perception phase which demanded getting data into databases. Similarly the year 2018 was dedicated to better understanding of the data and ultimately 2019 was the reasoning phase which called for taking action on data. With this approach and dexterity, Cogent’s flag bearer product: Tegaki, the AI enabled handwriting application was launched. Tegaki used NLP’s Optical Character Recognition (OCR) and Optical Handwriting Recognition (OCH) to get valuable insights and reduce operation costs. An overall algorithm of NLP is represented below:

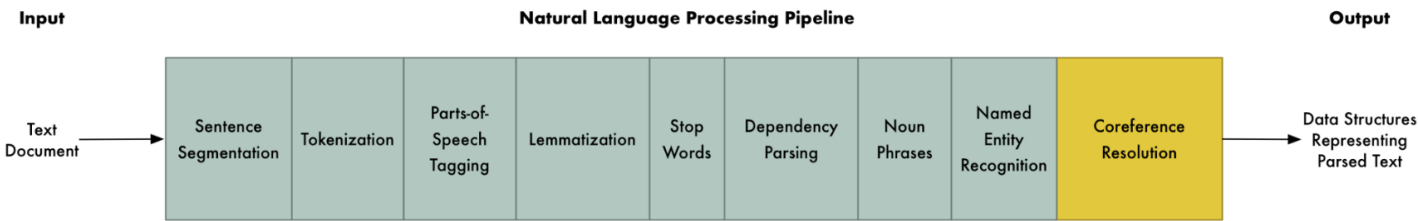


Figure 3. Natural Language Processing Pipeline

The company also applied grouping and segmentation, mapping to curve and pattern recognition and other evolutionary algorithms to increase the accuracy and obtain better results. By this novel approach, the firm soon realized that other companies were also putting efforts to build AI models assuming formatted data has been placed in their databases Herein, Malkin saw a great barrier of transforming unstructured data into structured data, and it became known that this disposition of data affects the overall performance of an AI model and the hook being tons of paperwork to be dealt with in most of the financial companies.

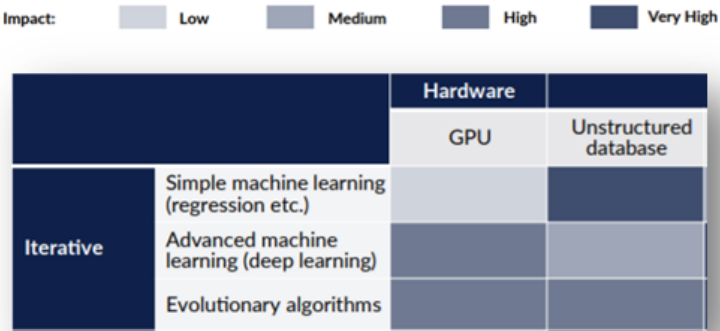


Figure 4. Impact of Unstructured database on Machine Learning algorithms

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Thus the company successfully found a hook and barrier to bring together the proprietary financial services data and cloud computing with Tegaki. After the success of their flagship product, the company wanted to expand into voice and video mediums and other platforms. Soon they came up with Kaidu - a time series platform to create customized models for their financial counterparts with cost cutting first and value add later as a strategy. Kaidu was centered at better understanding the textual product complaints in financial products thereby helping BPO divisions.

The company conceded with, Product is not the primary goal it's all about getting into the market, understanding the problems and leveraging AI to solve those.

## Conclusion:

Persistence in innovation leads to revolution. Cogent labs has successfully proved this by providing AI enabled software solutions and collaborating with cloud giants like Google Cloud Platform and Amazon Web Services making their way for AI exploration in Finance. The way Cogent labs has supervised their technical and domain level expertise into bringing different players in one team, they clearly are going to be the heart of Financial revolution. They have demonstrated huge potential to becoming a front-runner in implementing Artificial Intelligence and Machine Learning in the realm of Finance.

\*Note: All the above figures are sourced from the internet.