



WHITEPAPER



How capital markets are leveraging Natural Language Processing technology.

As demand for NLP soars, discover why, and in what way capital markets are adopting this cutting-edge technology to capitalise on trade communications.



Everyday life exposes us to vast quantities of data from different sources; via email, phone, the internet or social media. In a similar vein, businesses too are subject to constant data streams from internal and external communications or other feeds.

While the human brain is extremely efficient in processing this data, filtering out the important from the unimportant information almost instantaneously, businesses face the daunting challenge of scaling data management and analysis. With multiple sources across numerous departments often information can be lost amongst the noise with no central filtering system.

Although many electronic systems can ingest structured data, these systems fail to capture unstructured data such as missed opportunities and information mismatches. Within **financial markets**, the processing of such information is paramount to the success of a firm. In order to remain competitive and profitable in fast-moving and volatile markets it is essential that movements or positions aren't missed by traders or sales departments. Remote and hybrid workplaces have complicated

matters and there has surfaced a growing need for more effective tools to monitor trade and communication data, whether on or off the trading floor.

So how can firms bring order to this unstructured data, converting it to usable insights? The answer lies in **Natural Language Processing (NLP)**, which helps financial institutions to process, analyse and index information from a range of sources including audio and text.

Demand for NLP is extremely high. According to global business data platform Statista, with an estimated **year-on-year growth of 36.5%** for 2022 alone, it is clear that businesses are maturing to the benefits to be derived from the technology. Furthermore, the NLP market is predicted to be almost 14 times larger in 2025 than 2017, increasing from around three billion U.S. dollars in 2017 to over 43 billion by 2025.

Continue reading below to find out more about NLP and how it's changing the game when it comes to data analysis.



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WHAT IS NLP?

Put simply, Natural Language Processing (NLP) is a technology used to help computers understand human language. The technology is a branch of Artificial Intelligence (AI) which focuses on making sense of unstructured data such as audio files or electronic communications.

NLP combines both computational linguistics with **machine learning (ML)**, statistical analysis and deep learning models to break complex language and conversations down into machine readable data, detailed reports and actionable insights.

Intent and sentiment are extracted through the context and structure of each conversation, enabling the technology to understand communication, both written and spoken, in the same manner humans can.

WHAT IS DEEP LEARNING?

Deep learning is a subcategory of machine learning, concerned with algorithms inspired by the **structure and function of the brain** called artificial neural networks. This process **mimics** the way the human brain operates and processes data.

WHY DOES THE FRONT OFFICE NEED NLP?

Sales and trading desks are inundated with unstructured communication data. While some of this is recorded and stored daily, firms face the challenge of indexing and utilising this data accordingly to fit the overall aims and objectives of the business. According to a Greenwich Associates 2018 U.S Fixed-Income Sales Trading Study, 70% of all client interactions are lost - missing vital insights and opportunities to enhance sales relationship management.

The front office can apply NLP technology to capture, index and organise all client conversations, ensuring sales staff have access to timely data feeds that are presented back to them in a useful way.

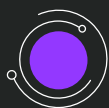
Furthermore, NLP can be **trained to identify sector-specific language** with exceptional accuracy, enabling the firm to capture complex financial products, prices and more from text or voice communications very effectively, providing quality data to traders, desk heads or quants.

Making sense of conversational data has become an essential part of accurately understanding your business. However, firms have previously had to rely on manual record keeping and reporting to make use of this data. NLP technology will become essential as firms look to futureproof their business by increasing the amount of real-time and intra-day risk controls. The opportunity is there for firms to save money, labour, and the headache of trying to adequately interpret data in a usable manner to fit their industry needs.

WHAT IS NLP?

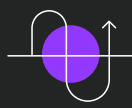
NLP's main strengths can be broken down into 4 key areas:

Consistency, Speed, Accuracy and Efficiency. Let's look at these in more detail.



Consistency

Standardisation is difficult to achieve when human input is needed to analyse data as everyone will interpret information differently. With NLP, algorithms, ML, and model training help achieve a consistency which is unmatched. Data is processed in real-time, around the clock, with the same criteria and therefore a higher degree of consistency is achieved across the data set.



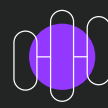
Speed

With a constant influx of data, information loses its value as new information becomes available. NLP accelerates the processing of this data, converting it to usable insights and actions by operating around the clock, 365 days of the year.



Accuracy

With the vast amount of data to be analysed and indexed, human analysts have an increased possibility of missing information. With the appropriate model training misinterpretation of data is reduced as the same inputs are analysed. Therefore, firms can be assured the results received are accurate and not riddled with inconsistencies.



Efficiency

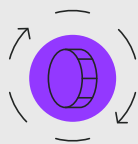
Large amounts of data can be analysed in real-time, saving time, energy, and money.

In addition to these strengths, NLP is characterised by its **accessibility** whereby users can **customize and train models**, as well as visualize insights from their data. Firms can create their own inputs, tailored to their specific needs.

Another interesting feature of NLP technology is the ability to generate reports on features within the model including **conversation analysis, missed opportunities and counterparty insights** among others. Extracting and unlocking this information is a powerful tool in enhancing profit potential and optimizing future growth.

IN WHAT WAY CAN NLP TECHNOLOGY BE USED?

The use cases with this form of technology are extensive and span many sectors within financial markets and alternative markets outside the parameters of capital markets.



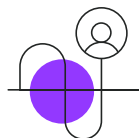
Profit Optimization.

As previously mentioned with the constant stream of communication data received daily, firms are working against the clock when it comes to indexing, analysing and utilizing this information for actionable insights.

Failing to capture opportunities from this data, fails to capitalise on the revenue to be achieved. However, NLP allows firms to **leverage deal opportunities** through speech analytics.

NLP solutions are able to recognise **price information and quotes**, so there is a real-time stream of RFQ information feeding a firm's pricing engine to automate indicative pricing models and influence quotes provided by the trading desks.

In an interview with RegTech 100, CEO and ex-fixed income trader, Oliver Blower, stated: "On an average trading floor and an average day, a trader or salesperson is missing more opportunities than they capture." Therefore, the ability to **identify profit and loss spikes** increases revenue opportunities, with NLP further enabling firms to utilise data collected in implementing means to **ensure opportunities are not missed** when it comes to the trading floor.



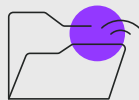
Relationship tracking and analysis.

Assessing the nature and quality of trading relationships has long plagued trading floor managers.

Performance outside the constraints of sales leaves trading floor managers with little to nothing to assess.

However, NLP within financial industries provides the opportunity to **understand the pricing efficiency** of your market makers, which relationships give you market colour and other insights into how traders are selling with **reports gleaned from communication data**.

In the long term this technology will ultimately **reduce operational costs** for firms as well as optimising sales relationships at different levels, thus increasing trades on grounds of **enhanced relationship management**.



Out-of-box dictation solution.

At NLP's most basic level it is a highly attuned **dictation and transcription tool** which enables firms to capture voice communications with increased levels of transcription accuracy produced in **real time**. As a standalone product NLP equips businesses with the assurance of high-quality dictations which can be backed up to the cloud for future analysis and reporting.

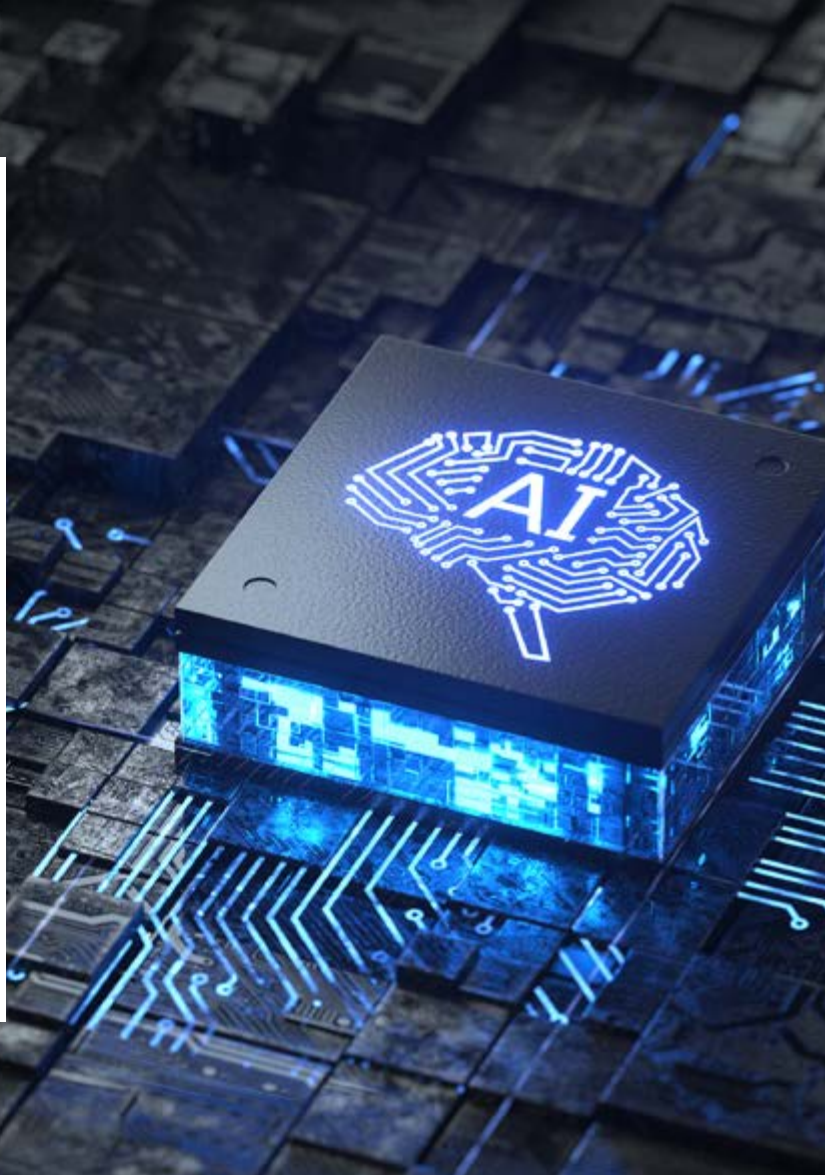
In financial markets NLP also serves to **automate ticket creation**, which is currently a manual task and a regulatory requirement to be carried out within a limited timeframe (UK - SYSC Systems and Controls (FCA Handbook), MiFID II). The failure to comply with such regulation leaves firms and traders at risk of reputational damage and financial penalty.

FINAL WORDS

NLP is one of the **most promising fields within Artificial Intelligence** and boasts many benefits for firms across many markets, but the value to be derived from its adoption in financial services makes it a no-brainer.

With the help of NLP, businesses are automating processes and making the most of their unstructured data, securing **actionable insights** that they can use to **enhance customer relationships and increase revenue**.

Despite its complexities, NLP is becoming more and more accessible to businesses and its use is set to increase. **Be a step ahead of the game by adopting an NLP solution from the offset!**



Want to see how it works?

Contact us and **request a demo** from one of our experts!

Get in touch