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Text Analytics Buyer's Guide

Six Must-Haves for Ensuring Successful Natural Language Processing ROI



So, you want to leverage the power of natural language processing (NLP) to optimize language data and automate business processes? Choose your text analytics wisely. The text analytics that power your NLP applications can make or break your outcomes. This white paper explores six text analytics essentials for ensuring reliable, scalable and accurate NLP applications.

› Why All the Hype Around NLP? It's a Business Game-Changer

› ROI Is the NLP End Game

› Text Analytics Can Make or Break NLP Investments

› Six NLP Considerations for Maximizing ROI

› Fast-Track NLP Outcomes with Real-World Inspiration

› Conclusion

Why All the Hype Around NLP? It's a Business Game-Changer

While NLP refers to the technologies that allow computers to understand human languages, text analytics is used in NLP to examine the structure and meaning of written content.

NLP and text analytics break down language data so components can be analyzed and understood. Businesses use it to analyze the language data hidden across their enterprise, automate operations and find untapped, actionable text data insight. Consider the language data and signals hidden within customer service interactions, social media channels and contracts.

No longer a nascent innovation, NLP has reached a technical maturity that can be relied upon to solve complex business challenges. Today's NLP applications go beyond simple chatbots and are used in complex business processes like claims, email management and robotic process automation.

ROI Is the NLP End Game

With so much power, it's no surprise that NLP adoption is rising. Expert.ai research reveals that 77% of NLP practitioners expect their spending on NLP projects to increase over the next 12 to 18 months.[1]

The insight doesn't end there. Conversational AI is being hailed as a powerful solution to augment worker capability so they can focus on tasks that add more business value. For example, Gartner estimates that contact centers will spend nearly $2 million on conversational artificial intelligence (AI) enhancements in 2022 with the hope of saving $80 billion by reducing labor costs within four years.[2]

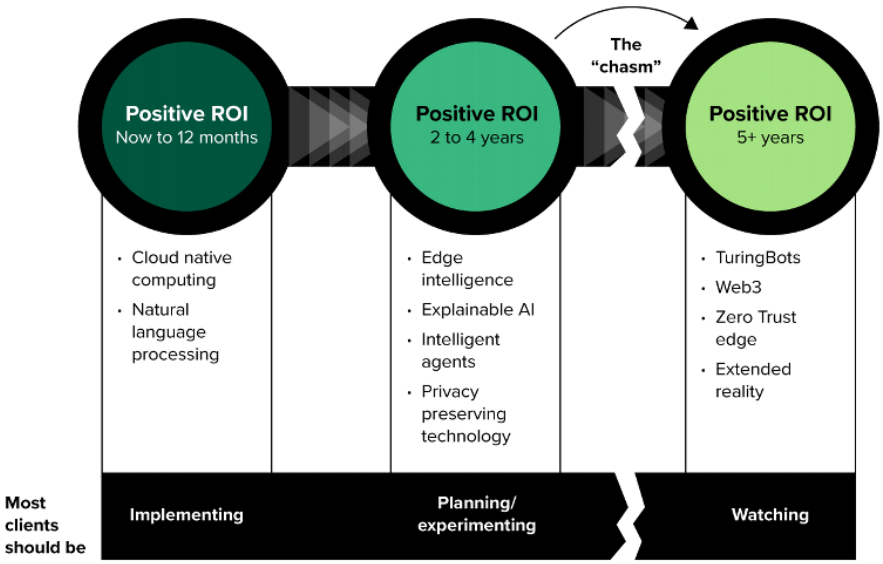
In its "Emerging Technologies That Will Change Your Business" report, Forrester Research ranked NLP as one of the top emerging technology areas for investment. It also said that NLP is a cornerstone of digital transformation in B2C, B2B and B2E scenarios.[3]

FORRESTER®

The Top 10 Emerging Technologies In 2022
Implement, Experiment With, Or Start Watching These Important Technologies

FIGURE 1

Forrester's Top 10 Emerging Technologies Will Go Mainstream In Three Phases



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AI Approach Can Make or Break NLP Investments

Enterprises looking to reap ROI from their NLP investment need to consider how and where they will apply NLP-driven applications into their business processes – and the text analytics used to understand language.

Different AI approaches vary by type and level of text analytics. Some are more accurate, while others are automated and scalable. Yet less accurate text analytics can result in rework that can degrade ROI. Cost is also a factor. ROI can be impacted if DIY solutions require high model development investments and increased training computation costs. This illustrates two ways that the choice of which AI approach can hinder NLP ROI.

"The Forrester Wave: Customer Feedback Management Platforms, Q2 2021" report recently stated, "Text analytics is table stakes, but not all text analytics capabilities are equal. Challenges with a vendor's text analytics are key reasons enterprises add other technologies to their stack."[4]

NLP by the Numbers

NLP growth is evident. So are challenges. Models degrade over time, and they behave differently across production environments. To mitigate adoption risk, NLP users want high-accuracy tools that are easy to run and customize.

The NLP market is expected to grow from $10.2 billion in 2019 to $26.4 billion by 2024.[5]

46%

of NLP practitioners say accuracy is their top priority.[6]

30%

of NLP adopters cite steep costs as a challenge to adoption.[6]

15%

of tech leaders say their NLP budgets doubled in 2021.[6]

How unstructured is your data?

Not all data is exploitable. Structured data is quantifiable, easily extracted and often stored in databases. Unstructured data like audio, video or text file formats require a high degree of contextual understanding to interpret. For example, the date and time of an email are structured data, whereas the text of the email is unstructured data.

According to Gartner, enterprises sit on unexploited, unstructured data with opportunities to extract differentiating insights. They say that data and analytics technical professionals can uncover such insights by applying natural language technology solutions: intelligent document processing, conversational AI and insight engines.[7]

Six NLP Considerations for Maximizing ROI

The accuracy with which your NLP applications operate hinges on text analytics to provide language understanding at scale. Errors or shortfalls in language understanding can wreak havoc on NLP applications. Consider these six text analytics essentials for powering NLP outcomes.



Open source isn't as free as you think

Open-source DIY text analytics can be tempting. The open-source code is freely available, with many libraries and access to a community of peers. However, the cons of open source can quickly outweigh any benefits. There's no product support, and you'll need a data science team and NLP expertise to provide the coding and AI skills required to build it out. It's time-consuming to set up and documentation is hard to find.

Functionally, open source can be more expensive in the long run because some open-source options require a lot of computational power, which is a hidden, unexpected cost. They also require costly resources to maintain the UI and models.



Domain knowledge isn't always ensured

Many NLP platforms only partially support business use cases. Yet business use of NLP requires domain understanding of how entities relate to each other to work correctly and provide value for organizations.

Knowledge models provide domain-specific understanding that can be essential for building out NLP applications for a specific type of business. For example, a knowledge model for the insurance sector can provide specific domain knowledge about industry jargon, terms and processes for an insurance company.

An embedded knowledge model with NLP can accelerate time to value and increase the accuracy of NLP applications. They provide domain expertise to the system from the get-go without going through a long model training process.



One-size-fits-all AI isn't a benefit

No single AI technique is a fit for every project. Yet many NLP approaches rely solely on machine learning (ML), which can be fine for general knowledge applications but falls short for most complex business use cases that require language interpretation and domain expertise. Hybrid AI combines ML and symbolic AI, which is rules-based, with rules that can be changed over time. This dual type of hybrid AI allows for more NLP flexibility, higher accuracy and greater scalability than either method alone.

Hybrid AI uses multiple approaches to solve problems in one system. It can be highly accurate in situations where little training data is available, and can be more cost effective and energy efficient than computation-heavy ML alone. It's also more explainable and predictable by design than ML-only approaches. It lets subject matter experts modify the model or adjust parameters after observing certain patterns or anomalies during training or once in production.

The benefits of this approach are backed by research. In fact, Forrester says "Our research confirms that the best results are achieved by a combination of AI that is both knowledge-based and ML-based — hybrid AI.".[9]



It's a deal killer if NLP can't support language ops

The rise of NLP use is increasing across the enterprise, and it is being used broadly, resulting in companies rushing to customize and adopt capabilities based on changing business requirements. This results in the need for an operationalized NLP workflow – or enterprise natural language operations (LangOps).

LangOps is a practice that supports the management of the entire life cycle of language models and solutions implemented within enterprise architectures. This includes developing and curating training data and AI models and continuously delivering retrained models integrated with relevant business processes and applications. Companies that adopt LangOps can manage and operate NLP across enterprise apps to reduce their technical debt and improve reusability across multiple functional areas, such as knowledge management, customer analytics and operations and the automation of language-intensive processes.

5 Reusability is a value generator

Knowledge graphs are an essential part of NLP that provide domain understanding of the relationships contained in both general and industry-specific language. Considering the wide range of jargon used in healthcare, insurance and banking, for example, it's easy to see how crucial customized enterprise-wide knowledge models for entity understanding can be.

The complexity of building a customized knowledge model from scratch is underestimated. To accelerate NLP projects and reduce technical debt, choose an NLP platform that lets you customize pre-existing standards, taxonomies and ontologies as a starting point, and ensure that it can extract key terms with data mining and support the use of handcrafted rules to augment entity attributes and relationships.

GARTNER: "By 2024, companies that use graphs and semantic approaches for natural language technology projects will have 75% less artificial intelligence technical debt than those that do not."[8]

6 Buy, don't build

Build NLP at your own risk. DIY approaches can seem tempting but building an NLP application from scratch comes with significant challenges that can impact ROI. A DIY solution can be complex and costly, requiring UX, UI, programming languages, data collection solutions and separate tools for data exploration, feature engineering, algorithm selection, data visualization, training and turning and data labeling, to name a few.

The skills required for all of these tasks are well out of reach for most companies, and any gaps in capability can reduce text analysis accuracy and NLP application outcomes.

In most cases, Forrester recommends buying a commercial solution. "Even if companies could successfully build the NLP, you would still need to find the resources and budget to build UI for business users, UI for ModelOps, data integrations, UI/workflow automation for audit checks and accuracy improvement, and all the components, integration points and automations that surround NLP. Buy, don't build."[9]

Fast-Track NLP Outcomes with Real-World Inspiration

Text analytics in NLP can be used to analyze complex documents, reducing errors to save time and lower the cost of manual approaches. It can also unearth market insights, find actionable information and recommendations and accelerate process automation to extract, classify and automate language-intensive processes.

Here's how it can work for your business:



Compliance

Detect and redact personally identifiable information (PII) to comply with the EU's General Data Protection Regulation.



Healthcare

Improve patient outcomes by extracting data from eHealth medical data and electronic health record notes, including information from test results and patient clinical health histories.



Call centers

Analyze call transcripts for sentiment analysis and word clustering, which can help with customer satisfaction and retention and train agents to optimize their call performance.



Finance

Identify potentially fraudulent transactions and detect abusive behavior.



Claims Management

Read, understand and extract essential details from medical, accident and other reports to accelerate claims handling.



Contracts

Analyze and classify contracts to extract key terms and clauses like termination dates, payment terms, renewal terms, etc.



Intelligent Automation

Transform language-intensive manual procedures into automated processes with robotic process automation, using bots to replace manual steps within a task.

Sales

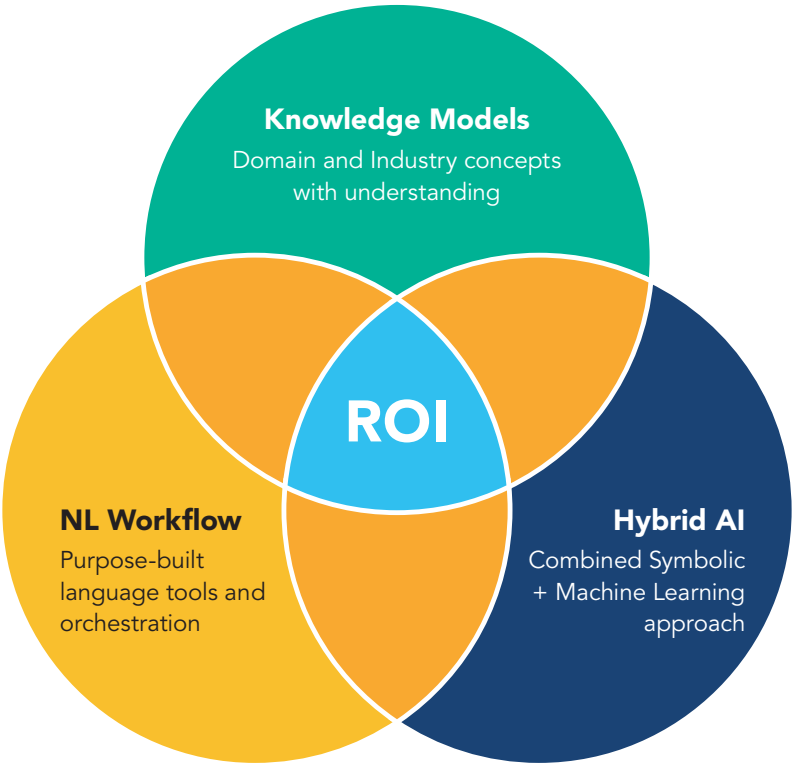
Identify patterns in buyer behavior and predict buyer intent with insights into preferred services and products.

Email Management

Increase customer satisfaction and efficiency by automatically routing and extracting data from customer emails.

Conclusion

Text analytics is crucial to NLP applications, providing a robust, accurate understanding of language data at scale. As companies look to advance their investments in NLP, they're seeking ways to streamline and accelerate the process and eliminate complexity and technical debt associated with building one-off NLP solutions. Platforms like expert.ai provide a ready-to-use NLP workflow with hybrid AI, knowledge models, and domain expertise to improve accuracy and accelerate time to value.



3 Keys to NLP Project Success and ROI

[1] Expert.ai, 2023 State of NLP Industry Survey, November 2022.

[2] CMSWire, What's the Impact of Conversational AI for Contact Centers?, Sept. 21, 2022.

[3] TechRepublic, Some of the top 10 emerging technologies for 2022 May not ever yield ROI, Oct. 3, 2022.

[4] Forbes, The Growing Importance of Text Analytics and NLP for Customer Experience Success, Nov. 8, 2021.

[5] AIAuthority.com, Enterprise Investments in Natural Language Processing Surge in 2021 and Accuracy Remains the Top Concern, New Research Reveals, Sept. 22, 2021.

[6] ODSC, Open Data Science, Natural Language Processing: The Trends Shaping Adoption in 2021, Oct. 11, 2021.

[7] Gartner, Emerging Use Cases for Natural Language Technology, Oct. 31, 2021.

[8] Gartner, Predicts 2020: Artificial Intelligence—the Road to Production, Anthony Mullen et al., December 2019.

[9] Forrester Research,"An Executive Guide to Text Analytics and Strategy: Findings from Forrester's 2022 Text Analytics Research" (September 22, 2022).

Get Started

Contact expert.ai to learn more.



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About us

Expert.ai (EXAI:IM) is a leading company in AI-based natural language software. Organizations in insurance, banking and finance, publishing, media and defense all rely on expert.ai to turn language into data, analyze and understand complex documents, accelerate intelligent process automation and improve decision making. Expert.ai's purpose-built natural language platform pairs simple and powerful tools with a proven hybrid AI approach that combines symbolic and machine learning to solve real-world problems and enhance business operations at speed and scale. With offices in Europe and North America, expert.ai serves global businesses such as AXA XL, Zurich Insurance Group, Generali, The Associated Press, Bloomberg INDG, BNP Paribas, Rabobank, Gannett and EBSCO.

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