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BY ULTIMATE SOFTWARE

THE PROMISE OF UNSTRUCTURED DATA

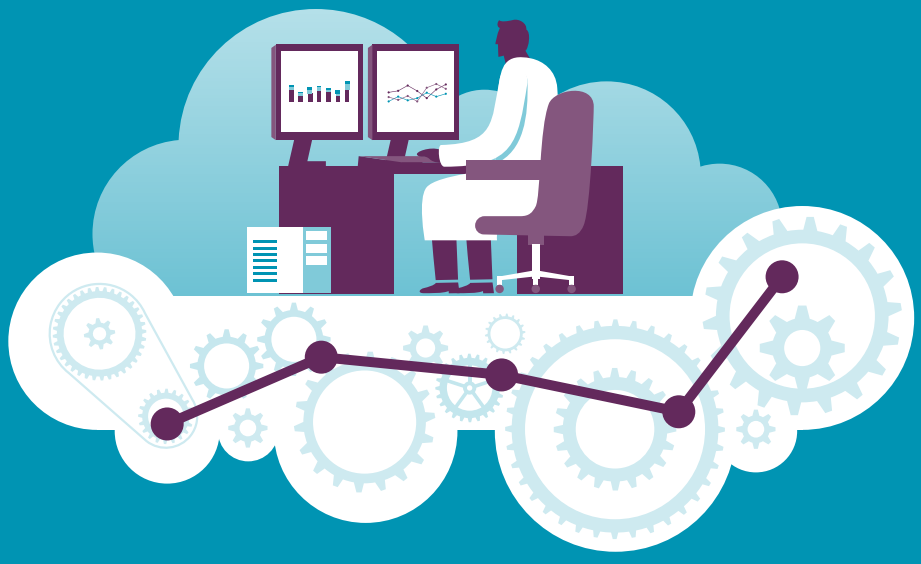
ENTERPRISES ARE RACING TO ADOPT NEW ANALYTICS TECHNOLOGIES THAT PROVIDE DEEPER AND MORE NUANCED LEARNING ABOUT THEIR PEOPLE TO AGGREGATE AND ANALYZE ALL THEIR DATA IN REAL-TIME.

The volume of unstructured data doubles every three months within enterprise companies. Gartner estimates that less than 20% of that data is structured. The other 80% is difficult to measure and hard to interpret for the majority of companies today.[1]

Yet, unstructured data is where the answers live. Why is that? Because qualitative data is rich in details that can bring depth and deep insight about what is truly happening within an organization. A traditional rating scale-style question lets a respondent offer feedback on a single dimension of an issue. The result is a number, not an answer: 71% of sales associates are dissatisfied with senior leadership. Ok, why? Open-end questions don't suffer the same drawbacks because free, open-ended text is exactly that: free and open-ended. Open-ended questions let respondents talk about what truly matters to them. They let respondents clue you into their mood and attitudes, and they let respondents speak in their own voice. Free text gives you deeper insight into what truly drives your people.

REALIZING THE PROMISE OF UNSTRUCTURED DATA

Recent advances in machine learning and natural language processing are propelling us into a new era of employee insights by unlocking unstructured data. It all starts with a model. A data model can be thought of as the instructions a machine uses to organize and interpret the information it is trying to process—in this case, natural human language. With a sophisticated model, unstructured data can become meaningful and actionable. Now, we can train models that accurately classify free text based on the themes and emotions expressed. We can identify both *what* an employee is talking about and *how they feel* about it, automatically adding structure to data that had been disorganized and underrepresented in decision-making processes. When employees answer open-ended questions in surveys or performance reviews, organizations can now truly listen to what employees are saying, and understand how they truly feel.



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The other 80% is difficult to measure and hard to make sense of for the majority of companies today.[1]

HOW FREE TEXT ANALYSIS WORKS

The first step to leveraging unstructured data is being able to count and organize it. This is where new technologies such as PeopleDoc Employee Sentiment Analysis and Surveys come in. Employee Sentiment Analysis and Surveys has models to reliably and quickly process each piece of text, automatically identifying themes and emotions. **Themes** summarize what the text is talking about (e.g., concepts like "Cross-Team Collaboration"), and **emotions** describe how the author feels about that particular response (e.g., feelings like "optimistic" or "annoyed"). After working with industry-leading HR groups to train, benchmark, and fine-tune workplace-specific theme models, Employee Sentiment Analysis and Surveys is able to recognize 140 different themes, from workplace topics like "Benefits & Compensation" to performance competencies like "Technical Knowledge." Computational linguistics researchers from Stanford University have developed paradigm-breaking models which can pinpoint over 100 emotions, from "confused" to "angry" to "excited."

Theme and emotion models make weighted decisions about free text by analyzing the combination of words, phrases, and semantic context clues present in the text. Crucially, these models are not keyword-based: they do not depend on pre-defined dictionaries that map terms like "bonus" to concepts like "compensation." Language is creative, messy, and wonderfully variegated. Faced with the task of understanding and organizing it, crude, dictionary-based models fall on their face. To effectively wrangle language, we need a statistical, machine learning-driven approach.

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A STATISTICAL APPROACH TO LANGUAGE

Robust text analysis means turning the rich creativity of language into numbers-- numbers we can add, subtract, multiply, and do lots of other powerful math with. In other words, Employee Sentiment Analysis and Surveys uses an ensemble of models to derive rich, multidimensional representations of linguistic meaning.

How do you turn a piece of free text into something you can measure and quantify? After part-of-speech tagging, dependency parsing, and additional preprocessing, text is broken up based on the semantically coherent phrases it contains. To extract phrases, we rely on a hand-built set of high-precision templates to identify meaningful textual units. These templates are derived from years of linguistic research at Stanford University and enable us to work with coherent phrases of any size.

Armed with the ability to turn text into vectors, we build models by classifying and weighting the importance of words, phrases, and other features. Using trained and probabilistic classifiers means that we can rely on our data to tell us how to assimilate all of the information, which is faster and more accurate than doing so by hand. Since theme and emotion models can operate independently, we need not impose artificial constraints on the number of themes or emotions to tag per document. Rather, our models will identify as many themes and emotions as are actually present in the text.

A WHOLE NEW WORLD

Open-ended comments give us a window into the minds of our employees: who they are, what they care about, what drives them, and what their challenges are. With the ability to automatically and accurately tag and process open-ended comments, we transform the entire landscape of employee intelligence.

All open-ended text can now be turned into measurable signals that turbocharge workforce analytics. Engagement survey comments, onboarding questionnaires, performance reviews, the chatter on employee social networks—all of these channels of unstructured data can be joined and put in service of understanding and improving your organization. The opinions, attitudes, hopes, fears, and dreams of your employees, expressed in open-end text and extracted by our machine learning models, now become signals that predict employee behaviors and workforce trends. Signals that can be incorporated in the key driver analysis that finally sheds light on why an organization has that attrition or absenteeism problem. Signals that can finally get you inside the heads and hearts of your employees.

The days of being unable to leverage unstructured data are over.
The days of basing business-critical decisions on only 20% of available data are through.
The days of fragmented, biased, one-dimensional employee understanding are no more.
The answer is here: PeopleDoc Employee Sentiment Analysis and Surveys.

1. https://www.forbes.com/sites/forbestechcouncil/2017/06/05/the-big-unstructured-data-problem/#1353794d493a

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PeopleDoc by Ultimate Software is committed to putting people first. The PeopleDoc HR Service Delivery platform helps HR teams upgrade the employee experience, improve HR agility, and ease compliance management. PeopleDoc global cloud solutions provide employee case management, knowledge portal, process automation, and employee file management capabilities. These solutions easily integrate with other HR and enterprise systems and can be implemented in 8-12 weeks.

In 2018, PeopleDoc joined Ultimate Software, a leading provider of human capital management cloud solutions.
In 2019, Fortune magazine and Great Place to Work ranked Ultimate #1 on their *Best Workplaces in Technology* list, in the *"Large Companies"* category, Ultimate's fourth consecutive year to top the list. In 2018, Fortune ranked Ultimate #3 on its prestigious *100 Best Companies to Work For* list, our seventh consecutive year in the top 25. Ultimate employs more than 5,100 professionals and serves approximately 5,600 customers with employees worldwide.

More information about PeopleDoc by Ultimate Software can be found at www.people-doc.com.

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