



Perception automates the tedious activity of sifting through unstructured data, so you spend less time deciphering, coding, and massaging results, and more time developing strategy and action plans.

HR is changing, and it's because of the emergence of AI, machine learning, and NLP technologies. The companies leading the revolution have always understood that data-driven decisions are central to every successful strategy. Now, they have the technology to make that a reality.

For too many companies, data is still overwhelming. Most of the answers to your important questions are in the unstructured open-ended text, but with thousands and thousands of comments, those answers are buried. It takes an expensive army of PhDs or consultants months to dig them up. However, by that time, the insights are outdated, and the effort wasted.

Leading companies realize that data volume, data silos, and latency absolutely cripple HR's data initiatives—and that machine-learning cloud technologies are the key to successful data-driven strategies. We know because we've done it repeatedly: by onboarding Perception by Ultimate Software, companies get instant analysis and relevant insights. Powered by Xander®, Ultimate's portfolio of AI technologies, Perception makes data-driven decisions easy, empowering companies to set the right priorities and win the game of converting data into tangible results.

### How Perception Drives Data-Driven Decisions

- ✓ Eliminates the manual, time-consuming activities of data analysis
- ✓ Cuts through the "noise," delivering insights that matter to your business
- ✓ Integrates unstructured text-based data with quantitative scalar data for a comprehensive view
- ✓ Saves time with artificial intelligence (AI), machine learning, and natural language processing (NLP) technologies that deliver insights in a matter of seconds vs. weeks
- ✓ Classifies open-ended text into 140+ themes (e.g., work-life balance, benefits, diversity, etc.) and 100+ precise emotions (e.g., appreciated, confused, annoyed, etc.) in real time
- ✓ Understands data with upward of 97% accuracy—human-level accuracy runs 65% to 75%

# Perception Puts Data to Work—Immediately



## Insights That Matter

The power of data isn't knowing that 62% of employees rate the cafeteria highly. The power of data is knowing what drives and detracts your employees. Perception uses data to impact the metrics that matter to your business, such as engagement and attrition.



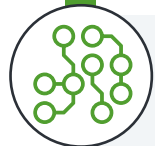
## No Latency, No Bias, No Problem

As fast as employees are submitting responses, Perception is analyzing results. There is zero delay in the classification of unstructured data or the analysis of key drivers, meaning Perception powers you to understand your company today—not your company three to six months ago. And because sophisticated computer models are classifying comments and analyzing data, the results are dependable and repeatable. Your analysis won't depend on which side of the bed an analyst woke up on that morning—it'll depend on the facts.



## The Complicated Becomes Simple

Data's more fun when technology takes care of the hard stuff. With Perception, data collection, management, analysis, and the delivery of insights are all automated. Key-driver analysis used to be a week-long, error-prone journey through spreadsheets for one, dedicated industrial-organizational psychology PhD. Now, it's the click of a button. You should be focused on helping your organization—not worrying about data management or brushing up on the nuances of linear algebra.



## Multi-Channel Approach

You never want just one side of the story. Perception's ability to tie together all channels of employee data, from engagement to performance and structured to unstructured, enables 360-degree employee understanding. You can seamlessly integrate Perception with your HCM solutions to leverage crucial employee metadata, such as tenure or compensation, to identify trends in different employee groups. And when your data solution automatically knows when employees start, when they get promoted, and when they leave, machine learning can identify the key drivers—so you can do something about it.



## Structured + Unstructured, All Under One Roof

Scalar data, by itself, is flat. It gives you numbers—43% of employees don't trust senior leadership—but not answers to why, or what you should do about it. Open-ended comments are the real window into how your employees feel and what they care about. But reading and hand-coding 18,000 comments is not only time-consuming, it's also biased. Perception's NLP expertise wrangles your unstructured data to make it simple and consumable. The models accurately classify feedback for themes (e.g., benefits, compensation, and communication) and takes it even farther to classify emotions (e.g., excited, annoyed, and worried) so that open-ended text seamlessly becomes a part of the automated analysis. Unstructured data becomes a joy, not a pain.

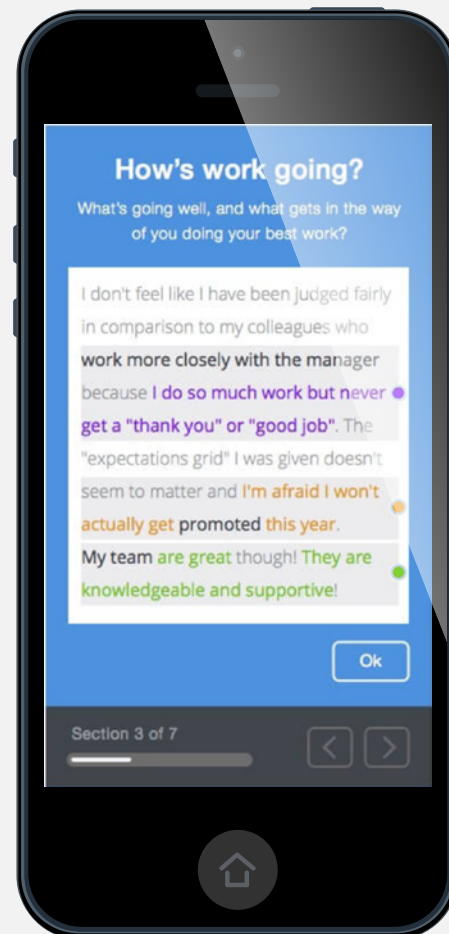
# Behind the Scenes: How Does It All Work?

Ultimate knows how to put your data to work because it has a team of statisticians, mathematicians, psychologists, and machine learning and NLP experts. The approach to data isn't only statistical, it's also grounded in an understanding of issues all humans face.

Understanding people starts with listening to what they say. Perception deploys over 100 emotion models and more than 140 theme models, so companies can leverage the power of NLP to classify and summarize open-ended comments immediately and accurately. Its theme ontology encompasses both common workplace topics and values (e.g., benefits, compensation, and meaningful work) as well as performance competencies (e.g., analytical ability and communication) and is trained on reams of data from dozens of companies. Similarly, Perception doesn't just look at text and identify positive or negative—it goes beyond that to reveal true emotion. Trained on millions of author-tagged documents, Perception's models have learned to identify emotions, such as anger, based on millions of real expressions by real people who were actually angry.

At the core of Perception's NLP technology are robust distributional semantic models of language usage in the HR domain. Its vector-based approach to language enables rich feature selection, both for training new custom models and for clustering documents to identify emergent themes. The quality of this training data and sophistication of the machine-learning approach leads to models that perform dependably well: Perception's accuracy, as evaluated by Ultimate's partners and benchmarked on held-out test sets, exceeds 80-85% for emotions and more than 90% for themes.

But it's not just about what people are saying. The key is understanding what people really mean. After classifying open-ended data, comments become inputs to further analysis. Scalar and unstructured data are both inputs in key-driver analysis and other statistical methods that identify predictors affecting engagement, attrition, and other metrics that matter to businesses.



THEME: Manager, Recognition  
EMOTION: ● Sad

THEME: Developmental Opportunities  
EMOTION: ● Worried

THEME: Coworkers  
EMOTION: ● Appreciative

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