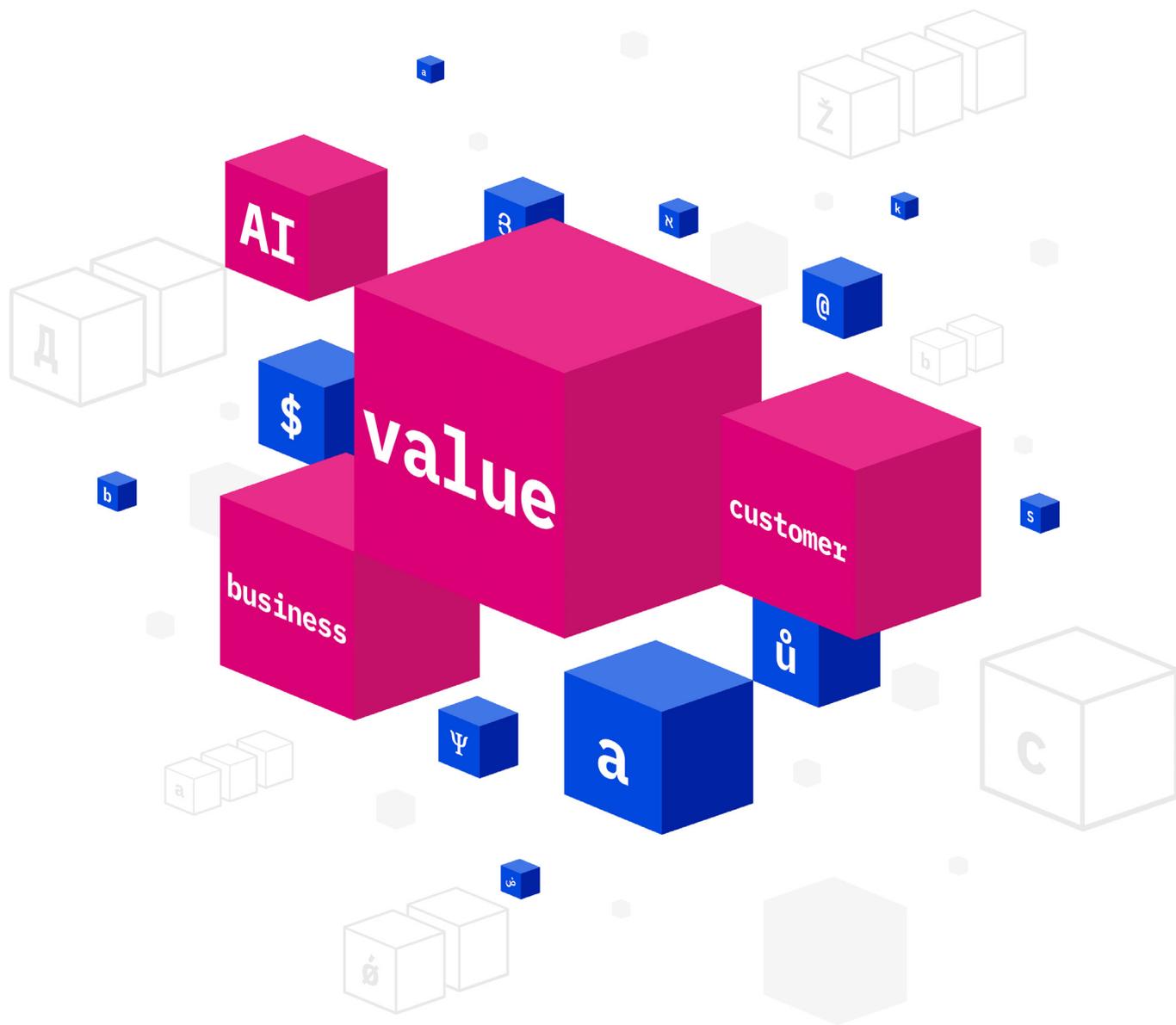


Text is your treasure

SentiSquare_

_tailor-made AI for customer-generated text



SentiSquare_

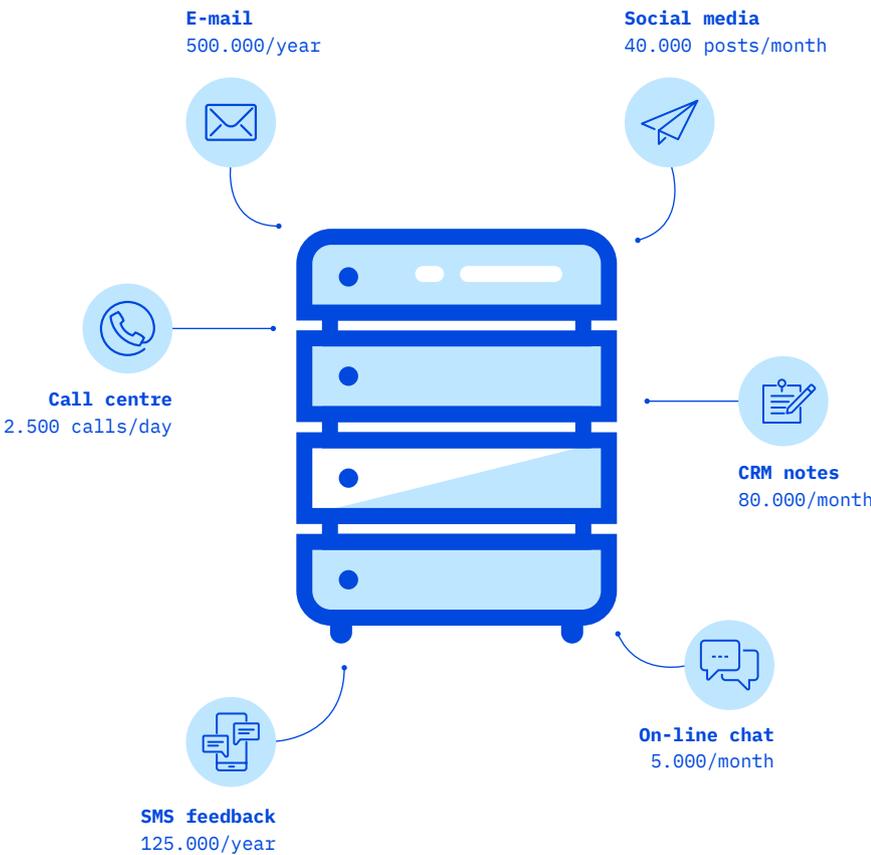


Text is your treasure

_tailor-made AI for customer-generated text



Can you imagine what amount of text data a company has to deal with?



Numbers & structured data

If it can be counted, it can be analysed. If it can be analysed, it can be interpreted. Businesses are used to using numbers to assess their success so far.

Text & unstructured data

But what type of count or interpretation can be made from a voice recording of a customer service transaction?

How are tweets or posts to be interpreted?

What type of information can be collected from customer product reviews?

Natural Language Processing

Natural language processing (NLP) employs artificial intelligence to simulate human ability to read and understand text. NLP is a way for computers to analyse, understand and derive meaning from human language in a smart and useful way.

Big data & NLP

Regardless of the sector, every business today relies on large volumes of text information. Composed of internally stored organizational information such as emails, call centre transcriptions, customer information and feedback as well as external open source information and social media, this big data is largely unstructured and in a state of constant growth.

To process the language, you can either...

1

Create rules: human-made rules and vocabularies

- + precise for individual examples
- + easy to understand
- domain and language specific
- hard to cover all examples

2

Build mathematical model: semantic space with high dimension

- + great at covering vast majority of examples
- + language and domain independent
- some cases are hard to cover
- hard to analyze and understand

Our solution? Combination of both approaches

Named entity / keyword extraction
extracting the most important parts of the text

Distribution semantics
extracting essential information

Machine learning
to combine the best of the two approaches

SemEval 2016 competition

Semantic Evaluation (SemEval) 2016 shared task for semantic similarity of texts

Input two sentences - output their semantic similarity

Monolingual (English)

- How do I pump up water pressure in my shower?
- How can I fix the low water pressure in a shower?

Result: 75 % correlation with human, # 2 of 113 algorithms

Bilingual (English vs. Spanish)

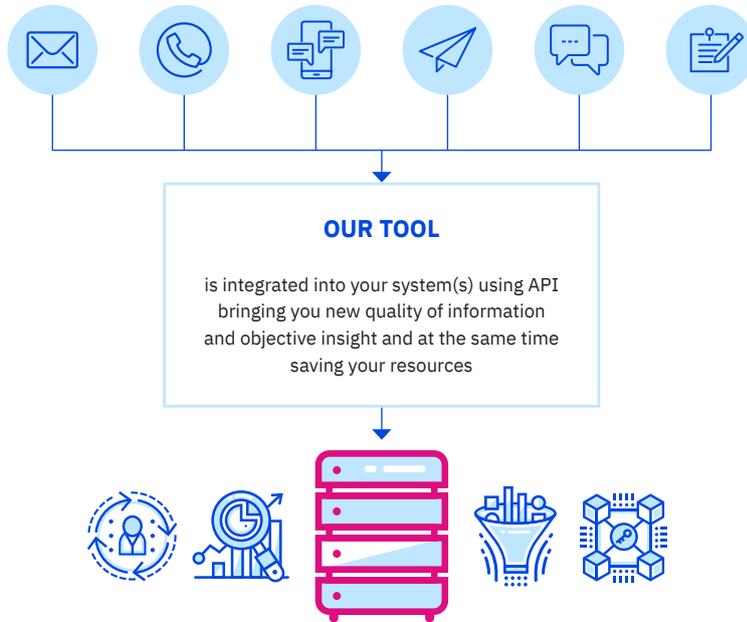
- How do I fix a hole / gap between my shower tile and the dry wall next to it?
- ¿Cómo reparo a heuco entre la bañera y la pared?

Result: 86 % correlation with human, # 1 of 26 algorithms

We already proved that our solution can help...



Integrating technologies into full solutions



- 1 Better use of human potential while reducing routine work
- 2 Better quality and consistency of services with lower costs
- 3 Better, faster and more informed business decisions

Big Data

Our work starts when it is not in human capacity to read and sort data anymore. People should do what they are good at and leave machine work to machines.

Language

Our algorithm can handle any written text. It does not matter in which language it's written or if it contains grammatical errors or typos.

Tailor-made model

We understand the specific language of your industry, your clients and the channel they are using to communicate with you (email, SMS, comments, posts etc.)

Objective insight

We work with facts, not impressions. Our machines don't have emotions or prejudice. With us, you can get objective insight in your customers voice and troubles.

Evidence-based decision making

Feedback scores tell you what happened, but text analytics tells you why. You can easily prioritize the biggest impact areas to take action.

Discover unexpected

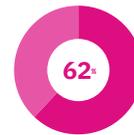
While analyzing the text, we are even better than human understanding. You can detect and discover topics and issues you would not even have thought to ask or look for.

Human-machine partnership

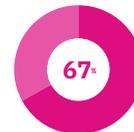
- Over the next decade, partnering with machines will help humans transcend their limitations.
- People have lived and worked alongside machines for centuries. However, society is about to enter a new phase, characterized by even greater efficiency and possibility than ever before.
- Machines will bring lightning speed and accuracy to all manner of tasks. It would be a fallacy to assume that technology is making human effort redundant. It's doubtful that computers will have fully mastered the fundamental, instinctive skills of intuition, judgment, and emotional intelligence that humans value.
- Human-machine partnerships will enable people to find and act on information without interference of emotions or external bias, while also exercising human judgment where appropriate.

38 %

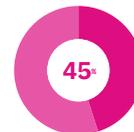
Accenture estimates that if companies invest in AI and in human-machine collaboration at the same rate as top performing businesses, they could boost revenues by 38 percent between 2018 and 2022.



Workers believe intelligent technologies will create opportunities for their work.



Workers think that it will be important/very important to learn new skills to work with intelligent technologies in the next 3 to 5 years.



Workers expect that AI will help them to do their job more efficiently.

Accenture: Reworking the Revolution (Jan 2018)

82 %



Global leaders expect people and machines to work as integrated teams in their companies within 5 years.

50 %



Managers believe automated systems will save us time.

81 %



Companies want to use artificial intelligence to predict customer requirements.

Dell Technologies:
The next era of human-machine partnerships



Our solution

Text is your treasure and means real value for your business

Email dispatcher / Ticket dispatcher

The most frequent way how your customers communicate with you is the most natural one: natural language. Processing all your customer requests is very time consuming, requires accuracy and fast reactions. This communication is usually managed by your client centre and support. Your client centre should always:



1

Read the request and understand properly what your client asks for.

Natural Language Processing (NLP) is a way how machines understand what people ask for.

2

Handle the request as soon as possible and move it forward to the right queue.

Our tools are *integrated* into your systems and help them to manage the requests *quickly and properly*.

You have to cope with lots of unstructured data

What is it about?

Routine work based on well defined tasks

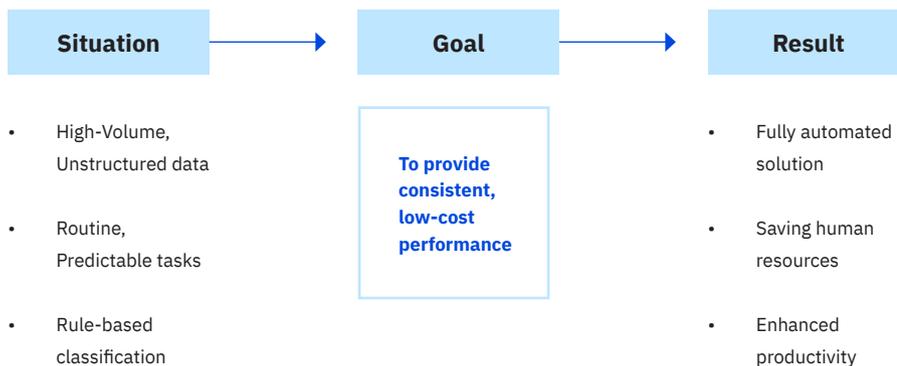
What is the goal?

Consistent, low-cost performance

How can we help?

Give you a tool that will save time of your employees and thus save your resources

People should do what they are good at and leave machine work to machines



Trouble that our client faced

500.000

Contact center receives thousands of emails per year.

280

Emails are dispatched to 23 different departments and classified to 280 queues.

50 %

The content is scanned using simple machine classification based on predefined keywords. The accuracy of classification is about 50%, 50% arrive in the wrong mailbox and must be read and manually transferred to another queue.

2:39

To read and select the right category for an email is very time-consuming. It takes 2 min 39 sec on average.

How can we help?

- Sophisticated text analysis quickly evaluates the data contained in the message and finds all the important information in it.
- The analysis takes into account all key entities plus the context.
- As a result, the accuracy of sorting rises to 83 %
- Manual sorting declines rapidly and precious human resources can be used for expert tasks.



e-mail dispatcher



What does this mean?

	Your staff
To read and classify one email	2 minutes and 39 seconds
To read and classify all the emails	3 000 MD/year (12 FTE)
What if the number of emails doubles?	6 000 MD/year (24 FTE)
How do you use your resources?	to read emails



immediately

0 FTE

0 FTE

to take care of your customers

Feedback analysis

When your clients talk to you, they expect you to listen. Any **feedback** is important, both negative and positive. Positive feedback will motivate your people whereas negative feedback should be used to improve your products or services and make you even better. To read all comments and feedback is very time-consuming and sometimes also subjective. Usually people are looking for what they already know or what they expect. With our tools you can get objective insight, find out what really matters and discover unexpected.



1

When your clients talk to you, they expect you to **listen**.

Natural Language Processing (NLP) is a way how machines understand what people say in *context*.

2

Know what is **important** for your clients and how they **feel** about you and your products.

Our tools are *integrated* into your systems and help you to identify any important message as soon as possible and deliver it to the right place.

Standard feedback analysis tells you WHAT happened but our solution tells you WHY

What is it about?

Interconnected activities and fast reaction

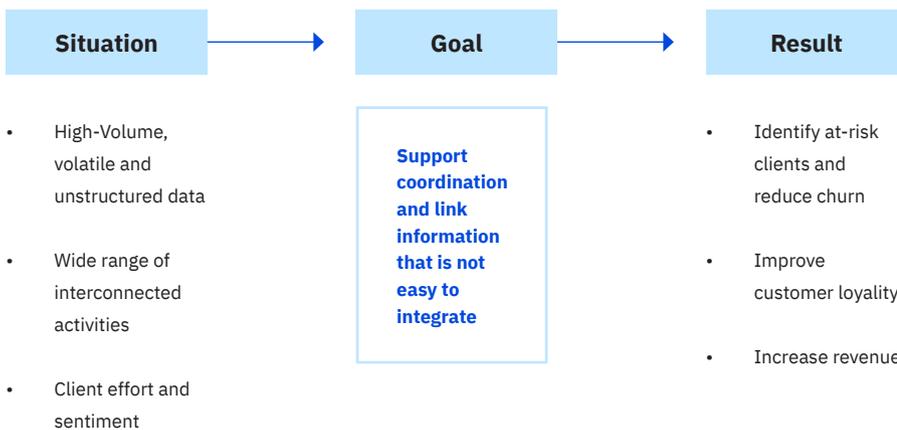
What is the goal?

Coodinated and fast reactions, identification of moments of truth you can rely on and prevent churn

How can we help?

Give you a tool that will discover every important intent hidden in your customers' comments and give you objective insight

Fix the problem where it really matters



Trouble that our client faced

1.250.000

Every year, client center asks 1.250.000 customers for SMS feedback.

60 %

60 % clients leave a written comment in their feedback (>10,000 SMS / month)

?

Customers provide feedback because they want to be heard and we should listen to them, but it is very time-consuming to read every comment and classify all the messages.

How can we help?

- Keeping your customer is much more efficient than compete for new one on the market.
- Our tools will help you to identify critical points in your customers' messages and warn you that you are in risk to lose them.
- You will know who your at-risk customers are and what are their issues. You can engage your at-risk customers faster and respond appropriately.
- For example, we can identify your top 20 % clients among all dissatisfied customers. Thus you can respond quickly and adequately to their issues and avoid churn.

Dissatisfied clients



TOP 20 clients
20 % clients
= 80 % revenue

Identification of effort
Perceiving of excessive client effort

Moments of Truth
Identifying the interactions that are important to customers

Root causes
Detecting the underlying cause of the incident from the specified text

Prognosis
Prediction of departure, escalation to the regulator, eventually court

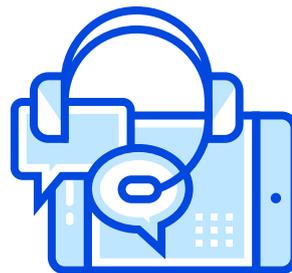
How to build an intelligent chatbot?

Basic steps you should follow:

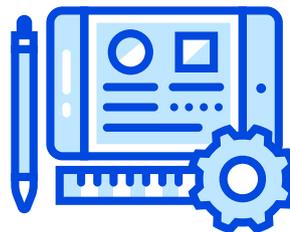
- 1 Identifying opportunities**
Business use case: What are the benefits that a chatbot could bring me?
- 2 Setting the goal**
Who are the users?
What purpose is the bot going to serve?
What is a must-have?
- 3 Designing the conversation**
What is the tone of the conversation?
What is the "personality"?
- 4 Designing the framework**
Step-by-step scenario containing all possible conversation flows.
- 5 Developing the bot**
Choosing the right technology that suits best your needs.

How can NLP technology help:

Understanding the target audience:
What are my customers really talking about?



Mining historical data:
Make the most of our know-how. Talk to customers on their own terms.



Our tailor-made solution uses NLP technology to design the chatbot in three consecutive stages:

1 Data analysis

To begin with, our tool needs to be **trained to understand the specific language** that your clients use. To do so, we use **historical data from previous conversations** (i.e. emails, client feedback, online chat). The more data you can use for, the better. Once the machine has learned to understand the given text and understand the context of historical data, it can efficiently process new data and actively engage in conversation.

2 Chat assistant

At this stage, the tool will primarily **improve its ability to understand the text** it learned on historical data. Thanks to the acquired knowledge, it will be able to correctly recognize the intents and key aspects of conversation. Based on such analysis, it will choose the most appropriate answers, which will be offered to the live operator in response to the question asked. The machine will remember the answer the operator selects and sends as the right one for the specific situation. With each experience gained, its algorithm will be continuously improving.

3 Autonomous chatbot

Finally, the computer is already so experienced that **it can answer the vast majority of the questions autonomously**. Thanks to the assisted learning that happened in the first phase, it can recognize the tiny nuances in the questions asked. Most chatting will be completely autonomous. However, the environment in which chatbot works is constantly evolving. New products are coming up and new situations that have not been solved before can occur. Therefore, it is also possible at this stage to switch the conversation to a live operator to help the machine find the right answer to a new question or a topic that has emerged in a new context. The machine could also ask the operator for assistance if the client needs to confirm the transaction and so on.



Multilingual

Our solution can easily handle any language your customers use



Tailor-made

Explore real conversations and establish sector-specific guidelines



Knowledge base

Connecting knowledge base to customer chat



Machine learning

Self-improving tool helping to bring the right answers

CRM notes analysis

Operators take many different notes during their conversations with clients. The notes are usually unstructured and vary considerably. Each operator has his own style, vocabulary, and comment structure.

Our NLP tool extracts what matters from unstructured notes. It classifies what or who is mentioned, what topics have been dealt with and feeds this information into your database in real-time.



1

Read the notes and **understand** them properly.

Natural Language Processing (NLP) is a way how machines extract information effectively.

2

Feed your database with correct and relevant information.

*Our tools are **integrated** into your systems and help them to **enrich standard** (and usually rigid) information structure.*

You have to cope with lots of unstructured data

What is it about?

Routine work based on well defined tasks

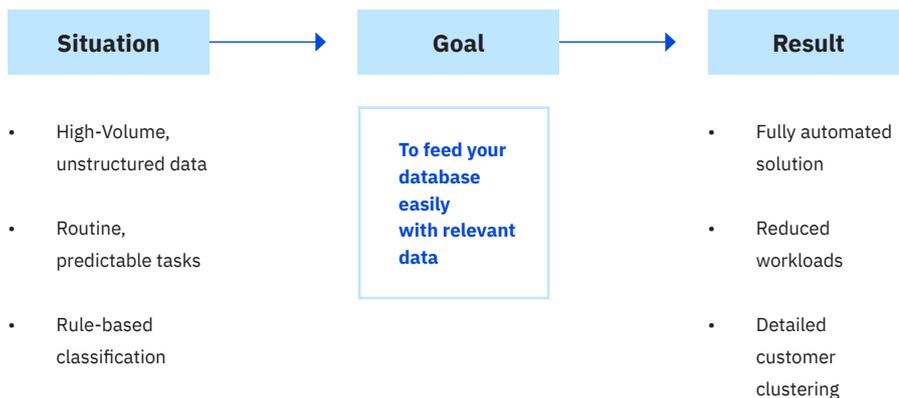
What is the goal?

Build and support robust knowledge-base

How can we help?

Give you a tool that will save time of your employees and improve the quality of information you work with

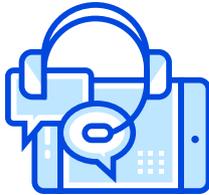
People should do what they are good at and leave machine work to machines



Call center transcript analysis

Call transcripts are generally not very accurate and contain lots of mistakes. This is mainly because phone conversations are generally much looser concerning grammar and syntax rules: we change subjects, repeat ourselves, insert filler words and sounds or speak in nongrammatical fragments.

Our NLP algorithms are used to mine call transcripts to deliver detailed analyses of clients' reactions. This can be done on a day-to-day basis to monitor KPI and client satisfaction or ad-hoc to gain insight into specific campaigns.



1

Read the **transcript** and understand it properly.

Natural Language Processing (NLP) is a way how machines extract information effectively.

2

Feed your database Feed your database with correct and relevant information.

Our solution can handle any specifics or tricks of the spoken language.

You have to cope with lots of unstructured data

What is it about?

Routine work based on well defined tasks

What is the goal?

Information extraction, campaign analysis, KPI analysis

How can we help?

Give you a tool that will save time of your employees and improve the quality of information you work with

People should do what they are good at and leave machine work to machines



Social media monitoring

There is abundant amount of comments all over the internet. **Each comment is potentially a customer opinion.** SentiSquare helps to understand the mass opinions in a moment by providing opinion summaries.

Our tools are successfully used as online service for digital marketing managers who deal with high traffic and noise in social media and can't comprehensively monitor what their consumers are saying about their brands around the globe.

The main benefit from using SentiSquare is understanding the customer desires expressed in social media conversations. Thanks to this knowledge we find the way to approach them.

1

Understand what your customers are saying about you online and learn how to approach them.

Natural Language Processing (NLP) is a way how machines extract information effectively.

2

Detect popular opinions in a moment, **identify** topics and comments with the greatest impact and track topics and opinions over time.

Our solution can handle the specific language of social media - use of slang and abbreviations, lots of misspelled words and grammatical errors

Optimize the impact of your communication efforts

What is it about?

Social listenig, brand reputation

What is the goal?

Listen and understand your customers online

How can we help?

Campaign analysis and planning, competition analysis

Spend less time analyzing, more time strategizing



Role specific use cases

Customer pain points and how to fix them



Customer experience

Customer experience specialists collect lots of customer feedback in written form, i.e. emails, reviews or call transcripts. This data is unstructured, disorganized and hard to analyze at scale. Our tools use

artificial intelligence and machine learning for text analysis so you can discover what matters to your customers and gain objective insight.

Spend less time analyzing, more time strategizing

Optimize the impact of your communication efforts

What are you interested in?

- objective insight
- feedback analysis
- sentiment analysis

When do you need good data?

- churn prevention
- early intervention
- moments of truth



Multilingual

Language independence - our algorithms do not depend on the language



Industry specific models

Create a classification model based on your own taxonomy



Entity extraction

Create context-aware entity extraction models based on your own vocabulary



Machine learning

Fully automated self-improving tool



Sentiment analysis

Build a domain-specific sentiment analysis model that works for your industry



Our happy client

We helped E.ON gain insight into one of its largest campaigns. Our detailed analysis of customer reactions was used to enrich CRM, create new customer clusters and bring new quality of information to campaign analysis and planning.

Marketing manager

Marketing teams collect large amounts of unstructured textual data like survey comments or social media reviews.

Our NLP tools go beyond keywords and analyze text contextually to gain objective insight and continually monitor trends and competitors.

Spend less time analyzing, more time strategizing



Brand reputation

Monitor what your consumers are saying about your brand around the globe



Industry specific models

Create a classification model based on your own taxonomy



Entity extraction

Create context-aware entity extraction models based on your own vocabulary



Social listening & PR

Build complex models specifically designed for the problem you're trying to solve



Sentiment analysis

Build a domain-specific sentiment analysis model that works for your industry

Optimize the impact of your communication efforts

What are you interested in?

- my product
- competitors
- trends

When do you need good data?

- campaign planning and evaluation
- running customer surveys
- developing new ideas



Our happy client

Nestlé used our tools for market research. As a result, we identified the Top 5 topics that are most relevant for the customer, discovered some controversial topics (e.g. Dukan Diet) and quantified the language that customers truly use. Based on this analysis, we made recommendations for articles based on seasonal and topical interest.

Client center director

Client centers perform lots of routine tasks that can be easily automated. Our tools help machines improve their ability to understand text so that they can perform their tasks with greater reliability and efficiency.

- Sophisticated **text analysis** quickly evaluates the data and finds all the important information in it.
- The analysis takes into account all key entities plus the **context**.
- Manual work declines rapidly and precious human resources can be used for **expert tasks**.

Optimize the impact of your communication efforts

What are you interested in?

- reducing routine workloads
- enhancing effectivity
- process automation

When do you need good data?

- churn prevention
- early intervention
- moments of truth

People should do what they are good at and leave machine work to machines



Multilingual

Language independence - our algorithms do not depend on the language



Industry specific models

Create a classification model based on your own taxonomy



Entity extraction

Create context-aware entity extraction models based on your own vocabulary



Moments of Truth

Identifying the interactions that are important to customers



Root causes

Detecting the underlying cause of the incident from the specified text



Our happy client

Our solution enabled E.ON to enhance its client center productivity. We increased email classification accuracy from 50% to 82% and saved 2 FTE.

Head of Sales

Acquiring new customers is important but retaining them accelerates profitable growth. Monitoring and evaluating communications with your clients is extremely important. Our tools help you create an

effective early warning system that can be scaled according to client size and importance or any other parameters essential to your business.

Spend less time analyzing, more time strategizing



Sentiment analysis

Build a domain-specific sentiment analysis model that works for your industry



Industry specific models

Create a classification model based on your own taxonomy



Entity extraction

Create context-aware entity extraction models based on your own vocabulary



Moments of Truth

Identifying the interactions that are important to customers



Root causes

Detecting the underlying cause of the incident from the specified text

Machine classifies, aggregates, prioritizes, summarizes, understands what it reads and presents it in a visual and friendly way

What are you interested in?

- information extraction
- monitoring client activity
- sentiment analysis

When do you need good data?

- churn prevention
- early intervention
- moments of truth

O₂

Our happy client

Our solution is used by O2 to mine plain text notes from business representatives and call center operators. Our algorithms are able to identify customers who are ready to leave, but who are not yet in the retention process.

BI manager

Your company produces large volumes of textual information every day. Our engine enables to you analyze all your textual content at scale and gives you a robust analysis of your processes. Thus, you

can monitor all activities based on what actually occurs inside your company: not based on what your consultants think might be happening.

Machine classifies, aggregates, prioritizes, summarizes, understands what it reads and presents it in a visual and friendly way

What are you interested in?

- reducing routine workloads
- boosting effectivity
- process automation

When do you need good data?

- decision-making support
- bottleneck identification
- KPI monitoring

People should do what they are good at and leave machine work to machines



Multilingual

Language independence - our algorithms do not depend on the language



Industry specific models

Create a classification model based on your own taxonomy



Entity extraction

Create context-aware entity extraction models based on your own vocabulary



Machine learning

Fully automated self-improving tool



Our happy client

Our solution enabled E.ON to enhance its client center productivity. The accuracy of email classification rose from 50% to 82% and saved 2 FTE.

Innovator / Technology evangelist

Artificial intelligence and machine learning are powerful tools that can help you identify potential for innovation, formulate strong arguments for your business case and support your decisionmaking processes.

Tailor-made AI for customer-generated text

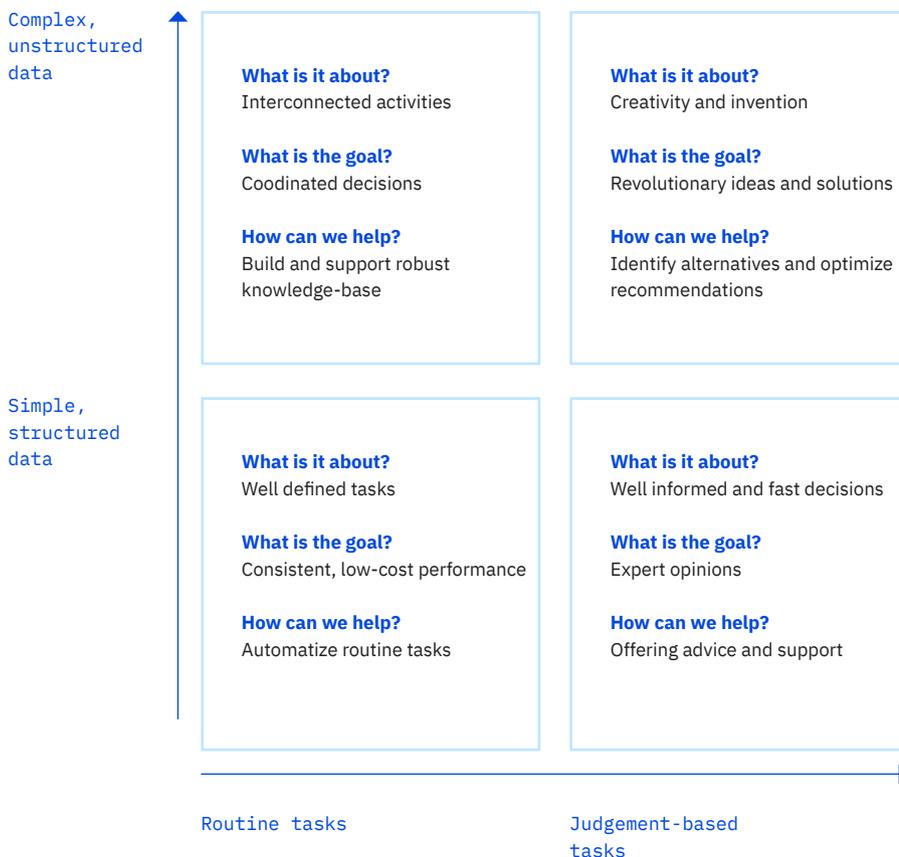
What are you interested in?

- new ideas
- trends
- competitors

When do you need good data?

- decision-making support
- business case evaluation
- marketing analysis

Where innovation potential can be sought? Let us have a look at your data and your processes and be sure we'll find it.



SentiSquare_

