associação portuguesa de contact centers

Bots or Humans? Or both?
CONFERÊNCIA INTERNACIONAL APCC
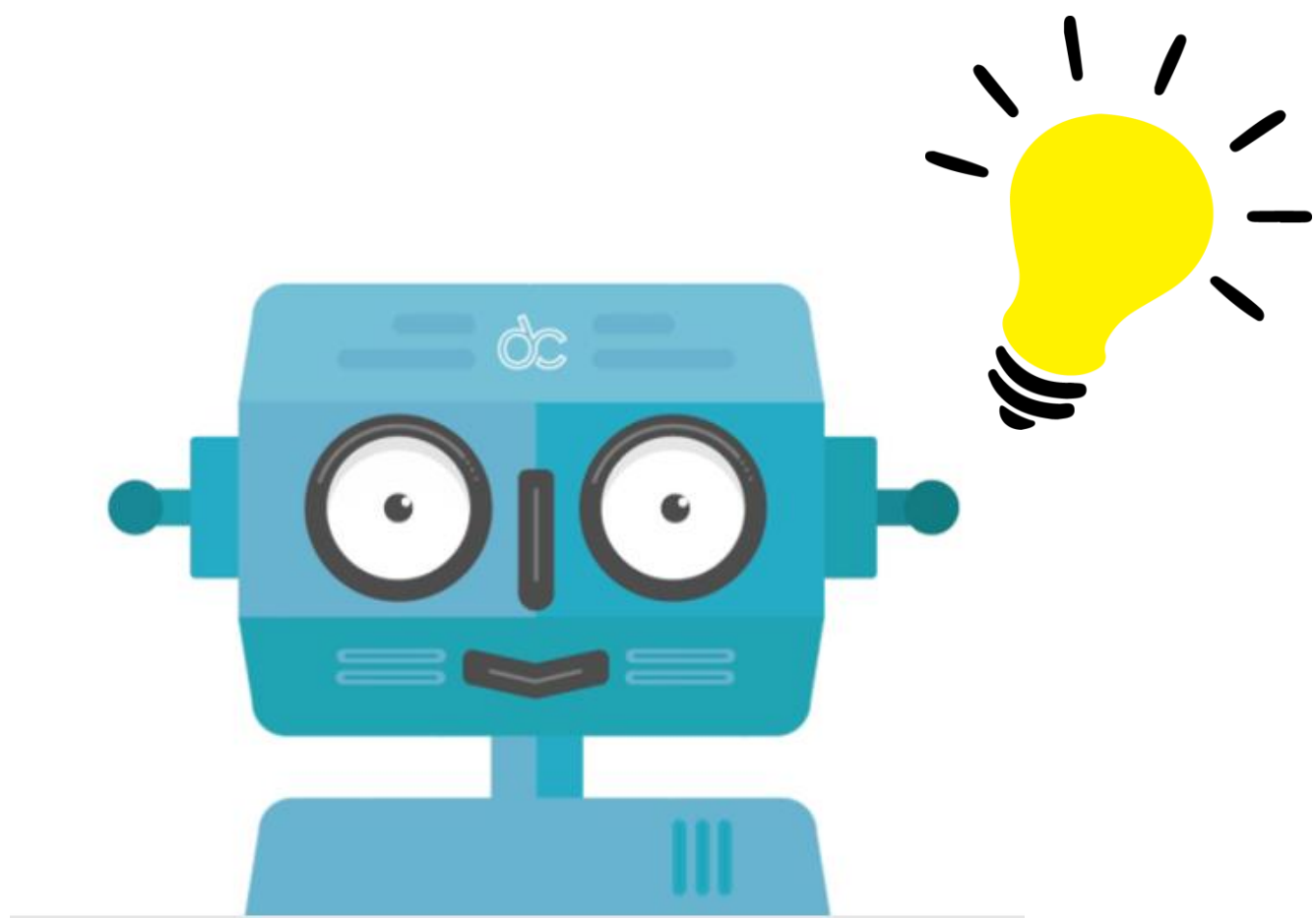16 de maio de 2017, Centro de Congressos do Estoril

Humans vs Machines? The future of customer service

Daniela Braga, Founder and CEO
Joao Freitas, CTO

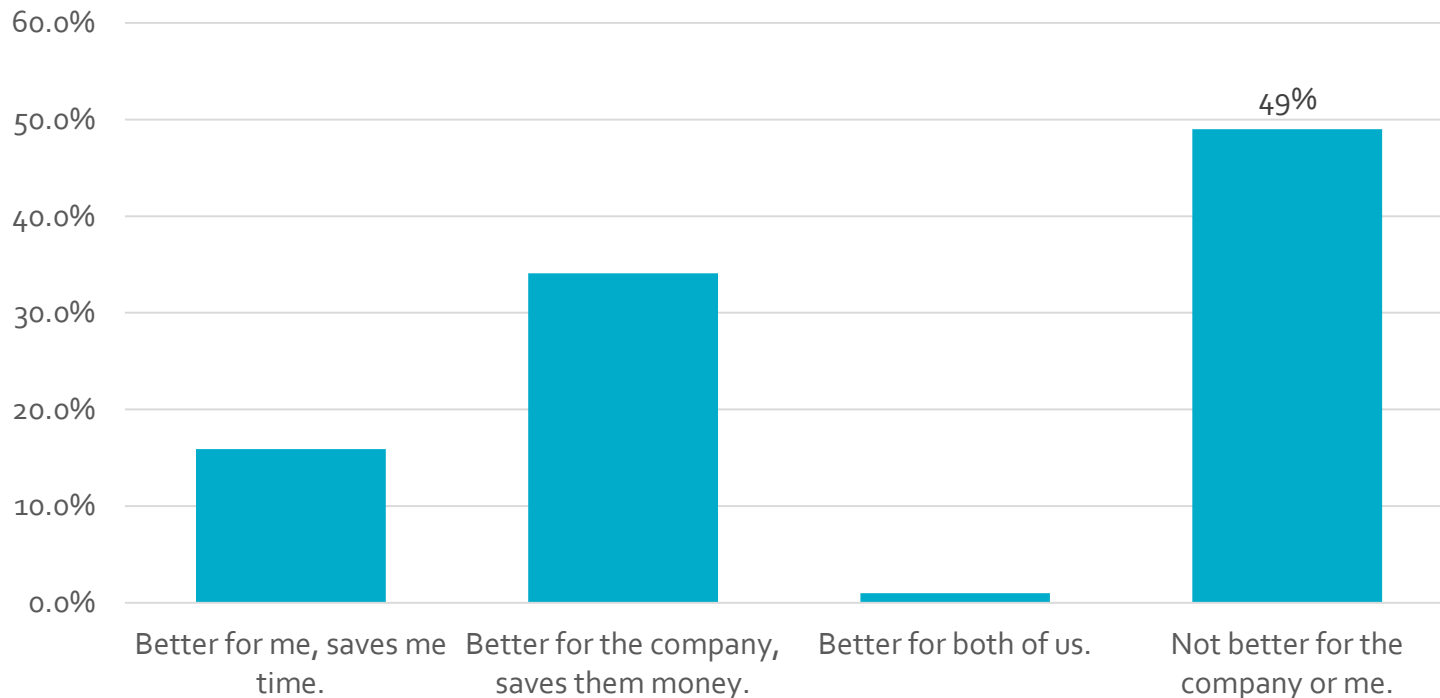*daniela@definedcrowd.com;*
joao@definedcrowd.com

defined crowd

Seattle - Lisbon

Consumers don't like to deal with IVR

Customer Opinions on IVR, Interactions LCC (408 questionnaires), in SpeechTek 2012
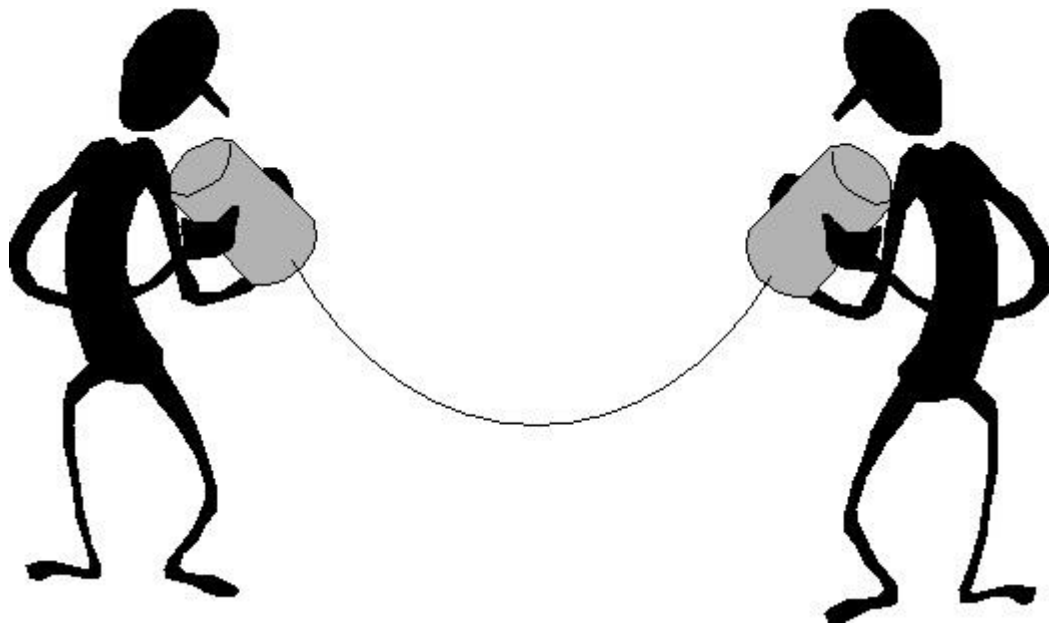
Main IVR issues

- Same technology of 20 years ago – command and control

- Inability to understand beyond the commands

- List of consumers' issues cannot fit in the limited number of menus

- Forces people to repeat themselves within a complex system of options and waste their time listening to irrelevant options
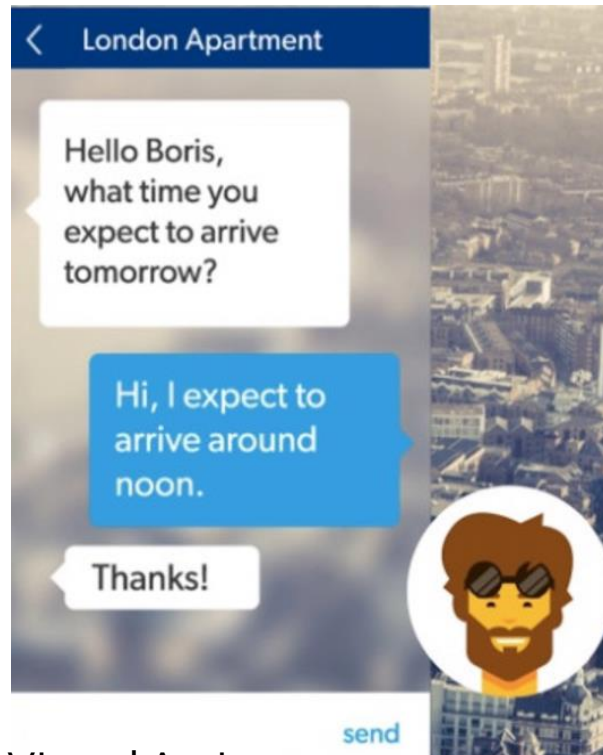
How is technology evolving

IVR

Virtual Assistants

The AI revolution
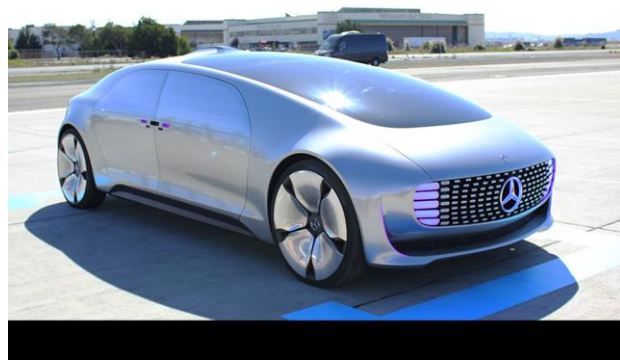
AI revolution

Call centers will be enhanced by AI

Cars, public transportation will be self-driven

A lot of shopping attendants will be replaced by robots and bots

First stage of medical diagnosis will be done by AI

Music will be done by AI

AI will revolutionize education and learning experience

Robots will help elderly at home and replace a lot of the caregivers' jobs

House tasks will be done by machines

How do machines learn

Machines need structured data to learn

EVERY DAY WE CREATE

2,500,000,000,000,000,000

(2.5 QUINTILLION) BYTES OF DATA

This would fill 10 million blu-ray discs, the height of which stacked, would measure the height of 4 Eiffel Towers on top of one another.

90% OF THE WORLD'S DATA TODAY HAS BEEN CREATED IN THE LAST 2 YEARS ALONE.
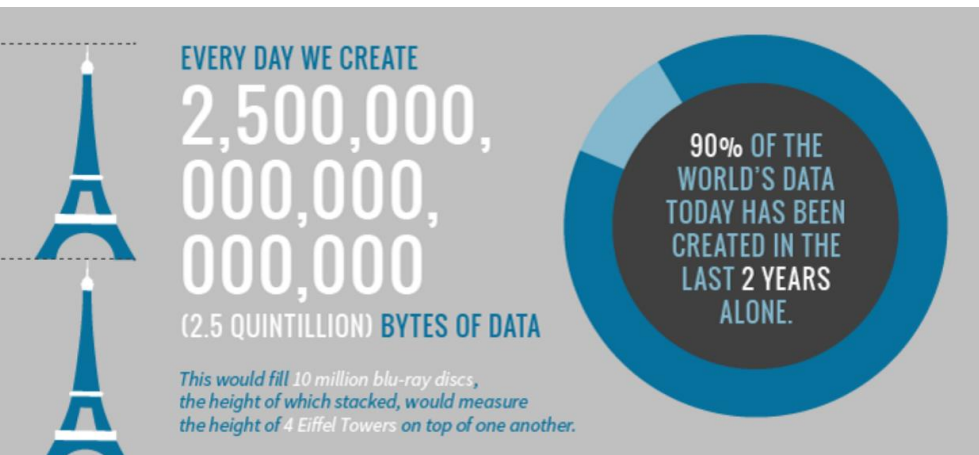
UNSTRUCTURED DATA

90% of the generated data is unstructured

Our platform enables data scientists to collect, enrich and structure high quality training data for AI and ML applications.

INFO   D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25

defined crowd

AI data workflows + humans-in-the-loop + machine learning

TOOLS

Web-crawler
Sentiment tagger
Named entity tagger
ASR
Cleanup tools
Text Normalizer
More....

CROWD

Linguists
Native speakers
Specialized crowd
Private crowd
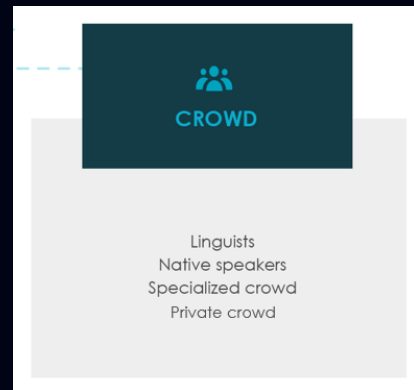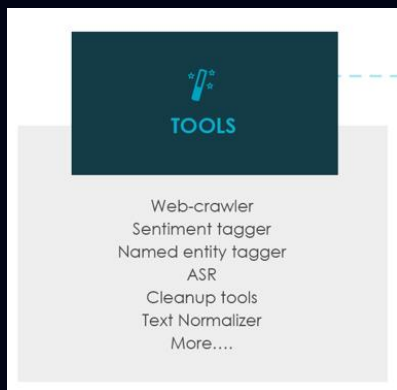
How can we improve customer care?

Audio

=

Text

Metadata
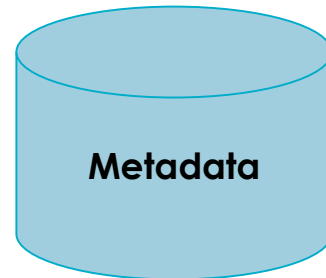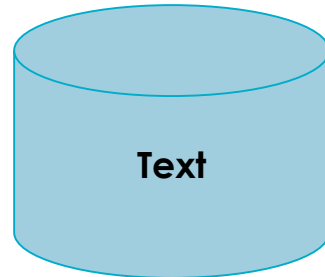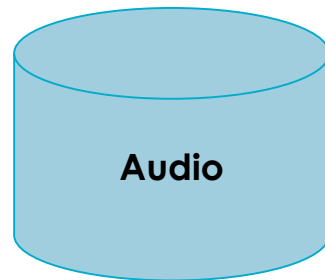
extract meaning
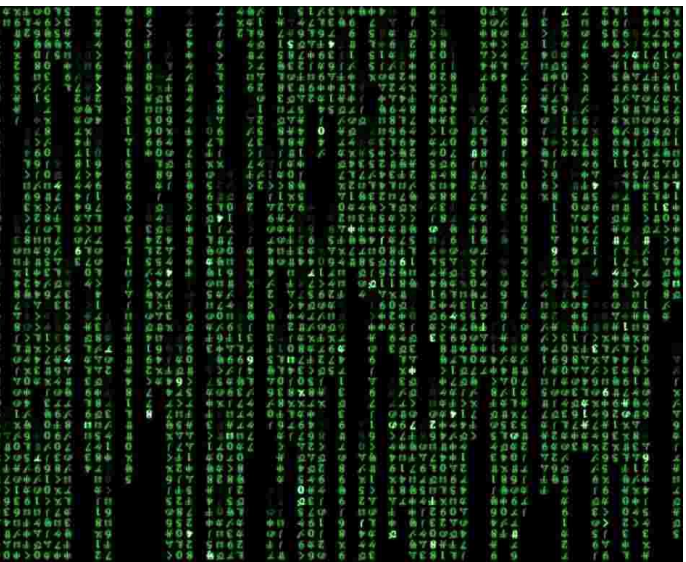
to understand
comprender

Can a machine be reactive?
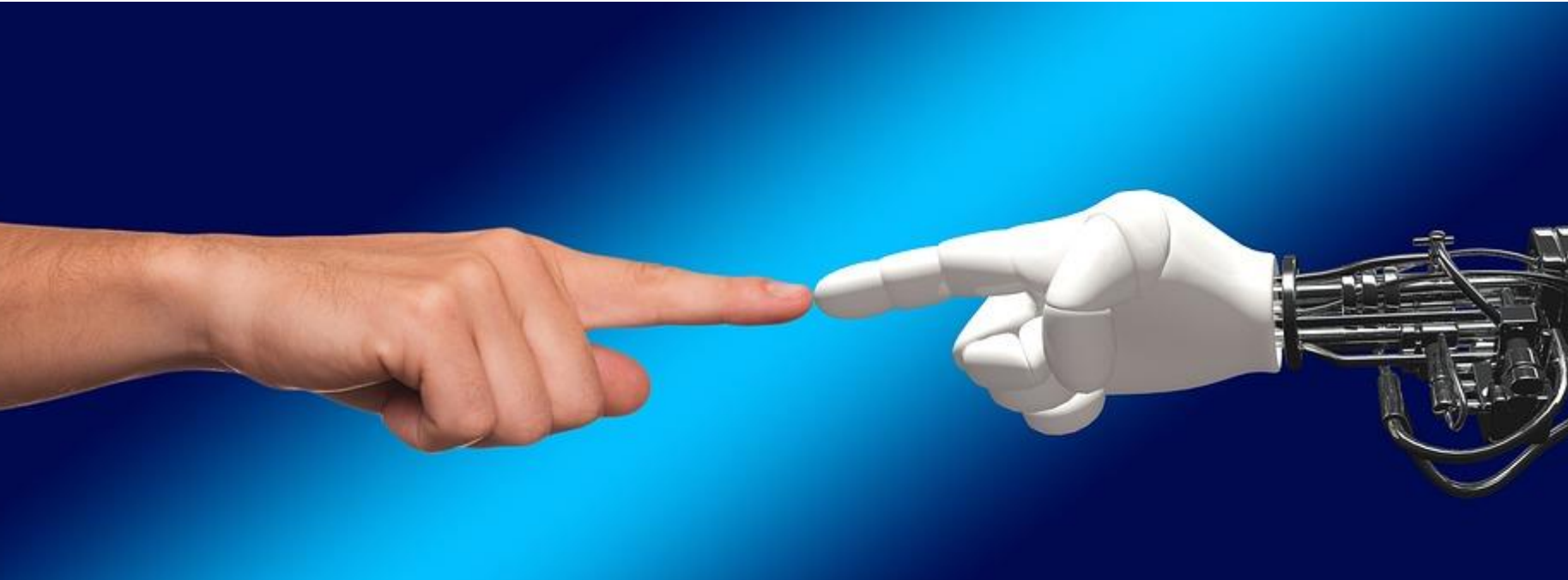
Automation Example
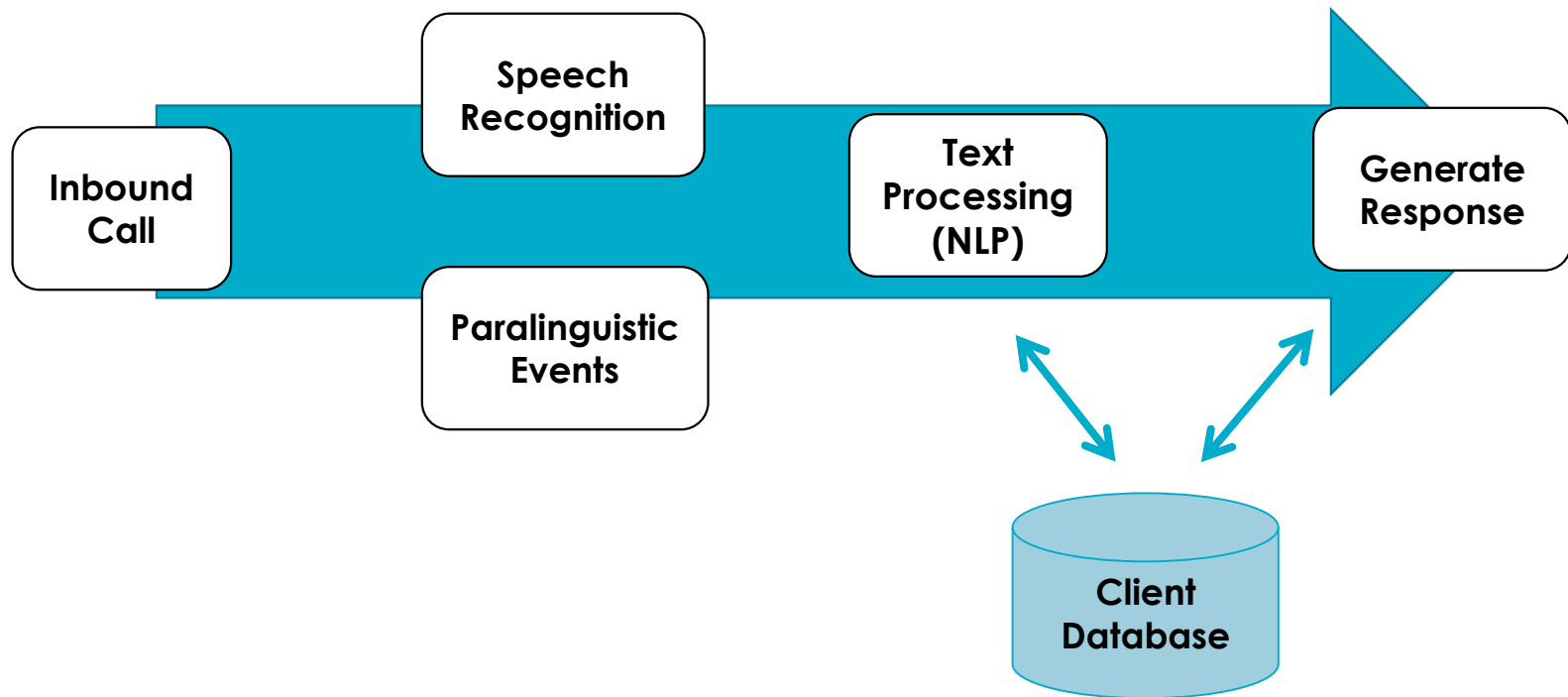
data mining of voice/conversation recordings
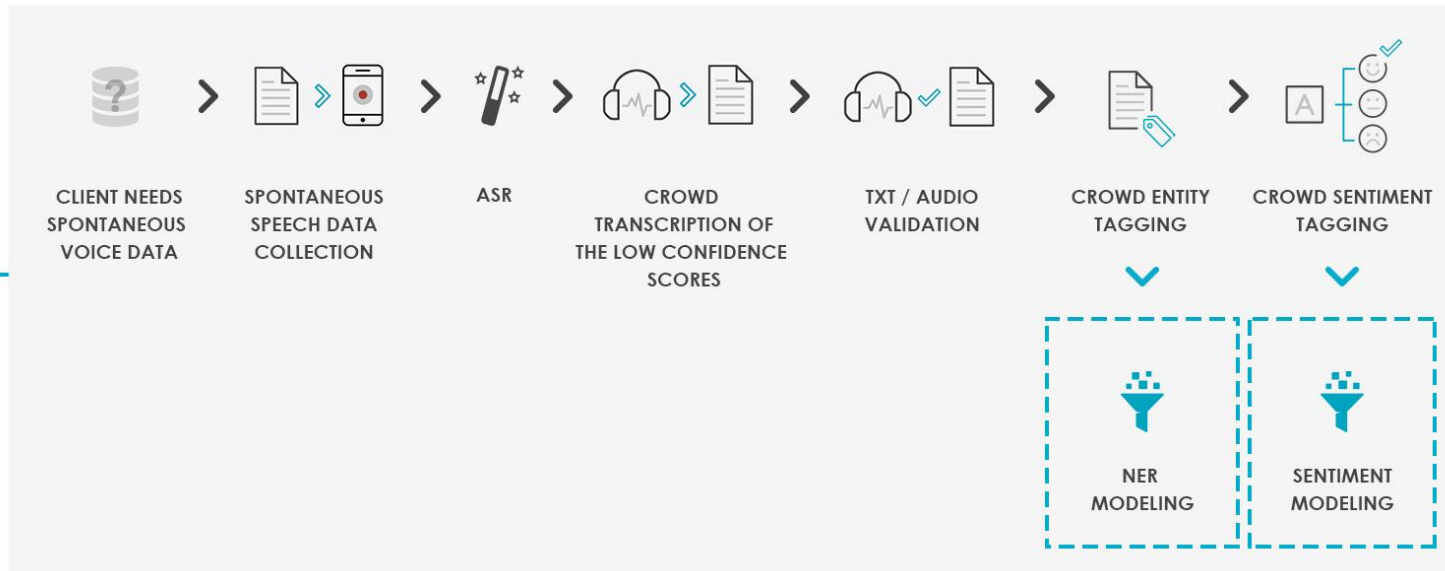
HI, ANNA

COSTUMER SUPPORT MANAGER ✏️

Seattle, WA

2481
CREDITS

BASIC PLAN

BUY CREDITS   UPGRADE PLAN

⚠ NOTIFICATIONS

JOB NAME	ACTION		TIME ELAPSED
Sentiment Analysis SharkTank Twitter	Review & Approve Closed Transcription...	NEW	🕐 38m
Rich Transcription SharkTank Facebook	Validate Job Complettion	NEW	🕐 5h
Computer Vision SharkTank Youtube	Download Report		🕐 3d

SHOW ALL NOTIFICATIONS

〽 RECENT JOBS

ID	JOB NAME	EST. FINISH	COST P/ UNIT	STATUS
1456	Sentiment Analysis SharkTank Twitter	Oct 7, 16	$0.10	ON GOING
1455	Rich Transcription SharkTank Facebook	Nov 1, 2016	$0.07	ON GOING
1454	Computer Vision SharkTank Youtube	-	$0.16	COMPLETED

SHOW ALL MY JOBS

PIPELINE ASSISTANT

DRAFTS

Sentiment Analysis

Rich Transcription

MOST USED

Browse...

Pipelines
> Basic Pipelines
> Advanced Pipelines

> Saved Pipelines

NEW PIPELINE NAME

To create a new pipeline, drop one of the pipeline templates here.

Dataset Name

Job Name

Tool Name

Model Name

Job Name

Browse...

Pipelines
- Basic Pipelines
- **Advanced Pipeline**

  Scripted Speech Data C...

  Spontaneous Speech Da...

  Text Data Mining

  Speech Data Mining

  Entity tagging & NER Mo...

  Sentiment tagging & Mo...

  Vehicle Data Collection

  Far Field Data Collection

Saved Pipelines

NEW PIPELINE NAME

To create a new pipeline, drop one of the pipeline templates here.

Dataset Name

Job Name

Tool Name

Model Name

Job Name

New Pipeline 1

Credits Needed: - ✓

SAVE   DISCARD   **SUBMIT**

Pipelines
> Basic Pipelines
∨ **Advanced Pipeline**
- Scripted Speech Data C...
- Spontaneous Speech Da...
- Text Data Mining
- **Speech Data Mining**
- Entity tagging & NER Mo...
- Sentiment tagging & Mo...
- Vehicle Data Collection
- Far Field Data Collection

> Saved Pipelines

SPEECH DATA MINING

Turn voice recordings data into rich data.

Knowing your data and how people react to your content is all-important for any business directly exposed to the public.
DefinedCrowd helps you gauge the reaction of your target audience and predict trends.

① Setup Crowd   ② Setup Data   ③④...⑨ Config Tools &Taks   ✓ SUBMIT

🗄 Dataset   **1**

UPLOAD MY DATA

ASR - Automatic Speech Recognition   OFF **ON**   **2**

Crowd Transcription   **3**

Transcription Validation   **4**

Entity Category Annotation   **5**

Sentiment Annotation   **6**

NER   OFF **ON**   **7**

Browse...

Pipelines
- Basic Pipelines
- Advanced Pipelin
  - Scripted Speech Dat
  - Spontaneous Speech
  - Text Data Mining
  - **Speech Data Mining**
  - Entity tagging & NER
  - Sentiment tagging &
  - Vehicle Data Collect
  - Far Field Data Collec

- Saved Pipelines

SUBMIT

SUBMIT

#6 Data Sets

Nome	Tamanho	Data de alteração	Tipo
CallCenterConversations.zip	939 MB		

Favoritos

Pesquisa

Formato:

Opções   Cancelar   Abrir

1

ASR - Automatic Speech Recognition   OFF ON   2

Crowd Transcription   3

Transcription Validation   4

Entity Category Annotation   5

Sentiment Annotation   6

NER   OFF ON   7

SPEECH DATA MINING

Turn big data into rich data.

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DefinedCrowd helps you gauge the reaction of your target audience.

New Pipeline 1

Credits Needed: -

SAVE   DISCARD   SUBMIT

1 — Setup Crowd   2 — Setup Data   3 4 ... 9 — Config Tools &Taks   ✓ SUBMIT

- Pipelines
  - Basic Pipelines
  - Advanced Pipeline
    - Scripted Speech Data C...
    - Spontaneous Speech Da...
    - Text Data Mining
    - Speech Data Mining
    - Entity tagging & NER Mo...
    - Sentiment tagging & Mo...
    - Vehicle Data Collection
    - Far Field Data Collection
- Saved Pipelines

Browse...

Dataset   1

CallCenterConversations.zip ✕

ASR - Automatic Speech Recognition   OFF ON   2

Crowd Transcription   3

Transcription Validation   4

Entity Category Annotation   5

Sentiment Annotation   6

NER   OFF ON   7
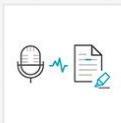
New Pipeline 1

Credits Needed: -

SAVE   DISCARD   **SUBMIT**

SPEECH DATA MINING

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for any business directly exposed to the public.
DefinedCrowd helps you gauge the reaction of your target audience.

(1) Setup Crowd   (2) Setup Data   (3)(4)(...)(9) Config Tools &Taks   ✓ SUBMIT

Browse...

Pipelines
- Basic Pipelines
- **Advanced Pipeline**
  - Scripted Speech Data C...
  - Spontaneous Speech Da...
  - Text Data Mining
  - **Speech Data Mining**
  - Entity tagging & NER Mo...
  - Sentiment tagging & Mo...
  - Vehicle Data Collection
  - Far Field Data Collection

- Saved Pipelines

Dataset — 1

ASR - Automatic Speech Recognition — OFF **ON** — 2

Crowd Transcription — 3
- ● **Send utterances with low confidence**
- ○ **Send utterances with medium and low confidence**

Transcription Validation — 4

Entity Category Annotation — 5

Sentiment Annotation — 6

NER — OFF **ON** — 7

New Pipeline 1

Credits Needed: - ✓

SAVE   DISCARD   **SUBMIT**

Pipelines
- > Basic Pipelines
- ∨ **Advanced Pipeline**
  - Scripted Speech Data C...
  - Spontaneous Speech Da...
  - Text Data Mining
  - **Speech Data Mining**
  - Entity tagging & NER Mo...
  - Sentiment tagging & Mo...
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  - Far Field Data Collection
- > Saved Pipelines

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1 Setup Crowd — 2 Setup Data — 3 4 ... 9 Config Tools &Taks   ✓ SUBMIT

Dataset	1
ASR - Automatic Speech Recognition	OFF ON 2
Crowd Transcription	3
Transcription Validation	4

#of Workers (e.g. 450)   Workers p/ Task

Entity Category Annotation	5
Sentiment Annotation	6
NER	OFF ON 7

New Pipeline 1

Credits Needed: -

SAVE   DISCARD   **SUBMIT**

SPEECH DATA MINING

Turn big data into rich data.

Knowing your data and how people react to your content is all-important for any business directly exposed to the public.
DefinedCrowd helps you gauge the reaction of your target audience.

1 Setup Crowd — 2 Setup Data — 3 4 ... 9 Config Tools &Taks   ✓ SUBMIT

- ▼ ▪▪ Pipelines
  - › ▪▪ Basic Pipelines
  - ▼ ▪▪ **Advanced Pipeline**
    - Scripted Speech Data C...
    - Spontaneous Speech Da...
    - Text Data Mining
    - **Speech Data Mining**
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    - Sentiment tagging & Mo...
    - Vehicle Data Collection
    - Far Field Data Collection
- › ▪ Saved Pipelines

Browse...

Dataset	1
ASR - Automatic Speech Recognition	OFF ON 2
Crowd Transcription	3
Transcription Validation	4
Entity Category Annotation	5
Sentiment Annotation	6

- ◉ **Positive / Negative**
- ○ Eckman Emotions

NER	OFF ON 7

New Pipeline 1

Credits Needed: -

SAVE   DISCARD   **SUBMIT**

- Pipelines
  - Basic Pipelines
  - Advanced Pipeline
    - Scripted Speech Data C...
    - Spontaneous Speech Da...
    - Text Data Mining
    - **Speech Data Mining**
    - Entity tagging & NER Mo...
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- Saved Pipelines

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1 Setup Crowd   2 Setup Data   3 4 ... 9 Config Tools &Taks   ✓ SUBMIT

Dataset		1
ASR - Automatic Speech Recognition	OFF ON	2
Crowd Transcription		3
Transcription Validation		4
Entity Category Annotation		5
Sentiment Annotation		6
NER	OFF ON	7

New Pipeline 1

Credits Needed: -

SAVE   DISCARD   **SUBMIT**

SPEECH DATA MINING

Turn big data into rich data.

✓ SUBMIT

SUBMIT

SPEECH DATA MINING

New Project Name

Example

Description

Here we'll have a brief project description.

CANCEL   NEXT

Sentiment Annotation   6

NER   OFF ON   7

Browse...

- Pipelines
  - Basic Pipelines
  - Advanced Pipeline
    - Scripted Speech Data C...
    - Spontaneous Speech Da...
    - Text Data Mining
    - Speech Data Mining
    - Entity tagging & NER Mo...
    - Sentiment tagging & Mo...
    - Vehicle Data Collection
    - Far Field Data Collection
  - Saved Pipelines

New Pipeline 1

Credits Needed: -

SAVE   DISCARD   **SUBMIT**

SPEECH DATA MINING

Turn big data into rich data.

Knowing your data and how people react to your content is all-important for any business directly exposed to the public.

✓ SUBMIT

Tools &Taks

✓ **SUBMITTED**

Great!
Your Pipeline was sucessfully submitted.

1

OFF **ON**   2

Crowd Transcription   3

Transcription Validation   4

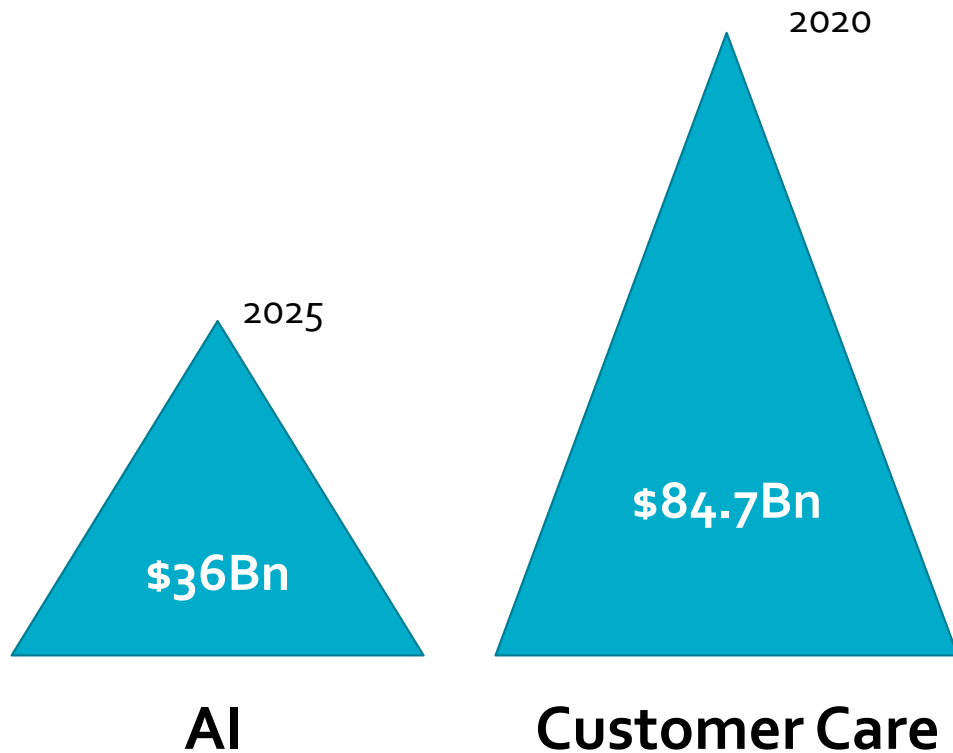Entity Category Annotation   5

Sentiment Annotation   6

NER   OFF **ON**   7

1039
of Members

Project Progress
73%
0%   100%

Hits Executed
3.287
0   4.519

Quality

RTA'S		
QT'S		
MV'S		

0   200   400

Timeline

100

50

Jan 01   Jan 08

Gender Distribution

Female

Male

Age Distribution

45+   18-35

36-45

WER

800

600

Count of WER

400

200

0

0.00   0.10   0.11   0.12   0.14   0.15   0.20   0.22   0.29   0.33   0.38   0.42   0.44   0.60

WER %

Intent Distribution

Intent	
CarDirections	
ChangeDrivingStyle	
DriveTo	
FindGas	
LookDoors	
TurnOnLights	
TurnOnMusic	
TurnOnRadio	
WashWindscreen	

INTENT	TurnOnLights
INTENTCOUNT	42

0   100

IntentCount

Disagreement

● Count of Disagreement ● Agreement

0%   50%   100%

Sentiment Analysis

● Negative ● Neutral ● Positive

0   100   200   300   400   500

Market size

2025

$36Bn

AI

2020

$84.7Bn

Customer Care

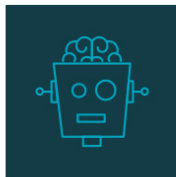# our clients

<1YEAR

60%
OF REVENUE
ⅴ
FORTUNE 500

MARKETS
US
JAPAN
EUROPE
AUSTRALIA
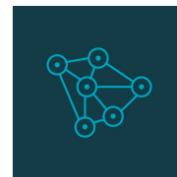
artificial intelligence

computer vision

machine learning

IoT

media

fintech

retail

healthcare

Watch our enterprise SaaS video: https://www.youtube.com/watch?v=vAWeT-edroc&feature=youtu.be

Learn more at **definedcrowd.com**

or send me an email to **daniela@definedcrowd.com**

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