

# WHO ELSE?

 Make AIs talk to each other!

Conversational AI for enterprises

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New normal: 65%  
of users search by

voice 

Conversational AI is a \$55bn  
e-commerce opportunity by 2025  
Gartner



# Phase 1: Every product will turn into a smart speaker

*Assistant, find me a taxi*

*Bot, book food delivery for 1 week*

*AI, find me a restaurant*

*AI, order household supplies*

*Siri, I need running gear*

..



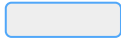
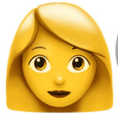
Cars



Smart Homes



Wearables

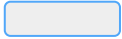


Everything that user say becomes an e-commerce request

## Phase 2: Your company will be useable like a bot

*Assistant, please tell me the biggest cost drivers of our portfolio in categories A, B, C*

*AI, we have to restructure the sales department. Please find me the 15 top performers. Find a new workspace for them too.*



Factories  
& Industry 4.0



Knowledge  
Worker



Smart Cities &  
E-Governments

Organisational know-how  
becomes available by natural language queries

# Conversational AI is a paradigm shift for business models

## Report: Voice assistants in use to triple to 8 billion by 2023

7:42 pm CET • February 12, 2019



The use of voice assistants is set to triple over the next few years, according to a new forecast from the U.K.-based analysts at [Juniper Research](#). The firm estimates there will be 8 billion digital voice assistants in use by 2023, up from the 2.5 billion assistants in use at the end of 2018.

## COVID-19 Is Making Alexa And Siri A Hands-Free Necessity

Chuck Swoboda • 10:13am EDT



## Voice search has created a huge vulnerability at the heart of Google's business

Hannah Roberts • Nov 25, 2016, 4:20 PM



Google CEO Sundar Pichai  
AP

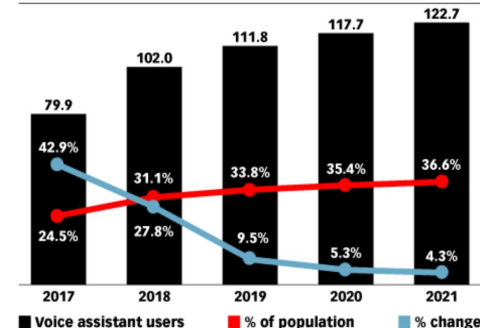
When the world shifted from desktop to smartphones, one thing didn't change: the existence of a screen on both devices.

The screen shrunk, but it remained the medium through which we interact with computers.

For Google, that meant its core online advertising business — visible search ads on a webpage — remained intact and lucrative.

## US Voice Assistant Users and Penetration, 2017-2021


millions, % change and % of population



Note: individuals of any age who use voice assistants at least once a month on any device

Source: eMarketer, May 2019



# A new philosophy for UIs & language as customer touchpoint



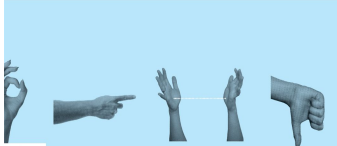
LAUREN COCCE DEAR 12.27.2018 09:00 AM

## Your Voice Assistant May Be Getting Smarter, But It's Still Awkward

The more smart devices that sell, the more compelling the AI technology becomes. But the virtual assistants inside still stumble.





CREATIVE TIPS + TOOLS PEOPLE + THINGS WE LOVE THE FUTURE OF... WHAT WE MAKE



Why Gesture is the Next Big Thing in Design

JAN 25 2018 BY DAVID ROSE

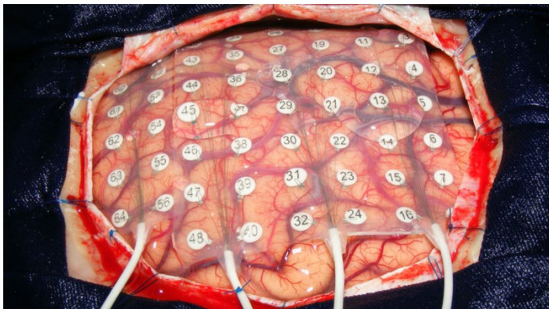

Since Siri was introduced in 2010, the world has been increasingly enamored with voice interfaces. When we need to adjust the thermostat, we ask Alexa. If we want to put on a movie, we ask the remote to search for it. According to some estimates, some 33 million voice-enabled devices reported for duty in American homes by the end of 2017.



SCIENCE

## WHY COMPANIES WANT TO MINE THE SECRETS IN YOUR VOICE

*Voices are highly personal, hard to fake, and contain surprising information about our mental health and behaviors.*



Epilepsy patients with electrode implants have aided efforts to decipher speech.

WENHT/ISTOCK.COM

Artificial intelligence turns brain activity into speech

# A driver of co-creation partnerships & public regulation of AI

## Tech Giants Team Up to Make AI Voice Assistants Device-Agnostic

ED TARGETT EDITOR  
2018 OCTOBER 12, 2018

INCREASEY DECREASE TEXT SIZE



Jeff Bezos: "Multiple simultaneous wake words provide the best option for customers"

A groundbreaking project, the Voice Interoperability Initiative, led by a host of major technology companies – including Amazon, Baidu, Intel, Microsoft, Orange, Salesforce, Sony and many others – aims to let customers access multiple different AI voice assistants on any device, just by saying its wake word.

## Why The Internet Of Things Might Never Speak A Common Language

A single standard for smart homes and other connected devices sounds great, but some of the biggest tech firms don't seem interested.



The Tower of Babel by Pieter Bruegel the Elder (1563) [ARTWORK: WIKIMEDIA COMMONS]

## To Break Google's Monopoly on Search, Make Its Index Public

- The tech giant doesn't have to be dismantled. Sharing its crown jewel might reshape the internet.

By Robert Epstein



PHOTO ILLUSTRATION: OLI PHOTO/GETTY IMAGES

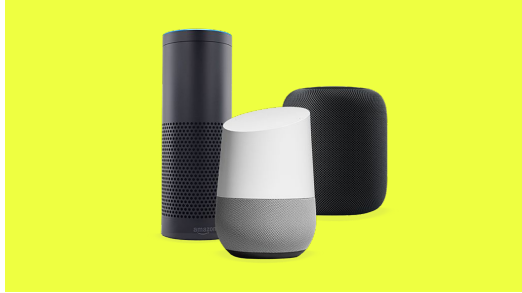
## DARPA wants to teach and test 'common sense' for AI

12:18 am CEST · October 12, 2018

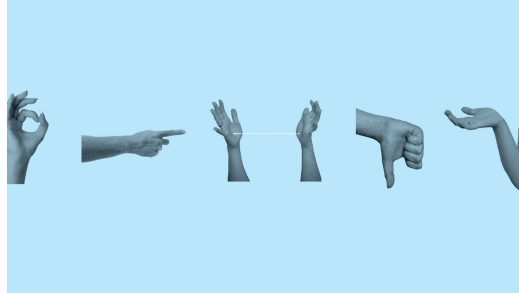


It's a funny thing, AI. It can identify objects in a fraction of a second, imitate the human voice and recommend new music, but most machine "intelligence" lacks the most basic understanding of everyday objects and actions — in other words, common sense. DARPA is teaming up with the Seattle-based Allen Institute for Artificial Intelligence to see about changing that.

# Take away: **Speech is more than voice**



Voice Assistants  
Available



Gesture Interfaces  
Experimental: +5 years



Brain Machine Interfaces  
Experimental: +10 years

# Some say, it is time for an "Internet of Thoughts"

Reason why you talk to somebody



Problem: User have different language dictionaries

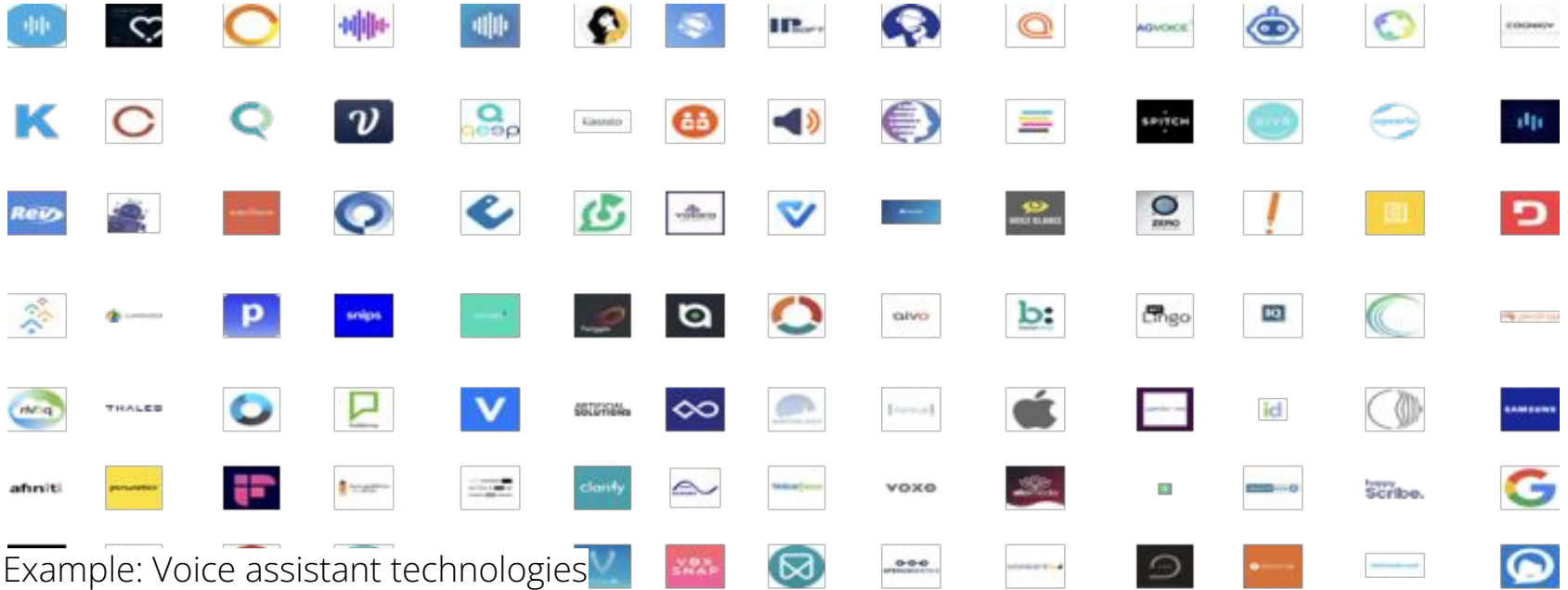


Joe Rogan & Elon Musk (05/2020)  
about Universal Language

The Problem

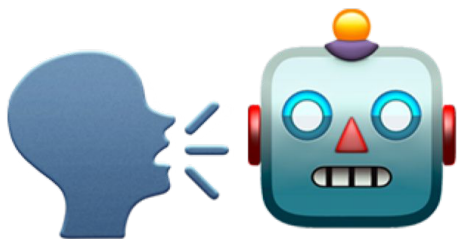
**Bias: Every AI  
speaks differently**

Situation: For every possible use case 1000+ AIs compete



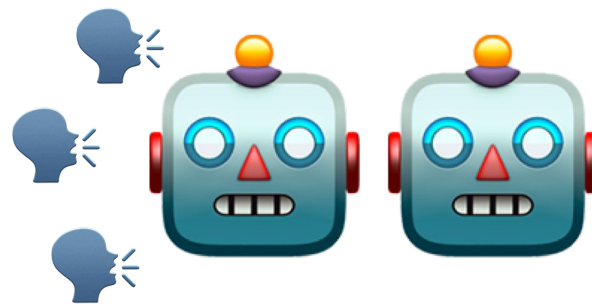
Example: Voice assistant technologies

Reason: There are 2 dimensions of bias in NLP



How will Als talk to users?

How do Als interact with users?



How will Als talk *about* users who talk to them?

Which labels will Als use to store information?

# Problem 1: Every AI interprets human language differently

*I am hungry, AI order me Pizza.*



Note: AIs are only niche intelligent - they only work good in the domain they are trained for



Google

The user looks for a pizza



Nuance

The user is in Hungary and searches a pizzeria



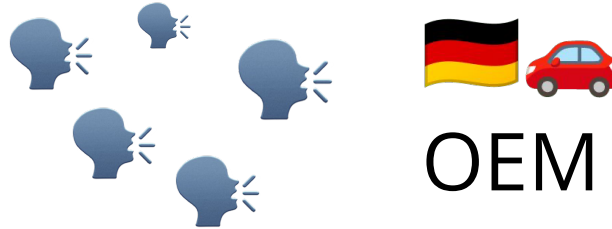
Bosch

Sorry, I didn't get it



100 AIs =  
100 Opinions

## Problem 2: To sell products globally OEMs must use multiple AIs

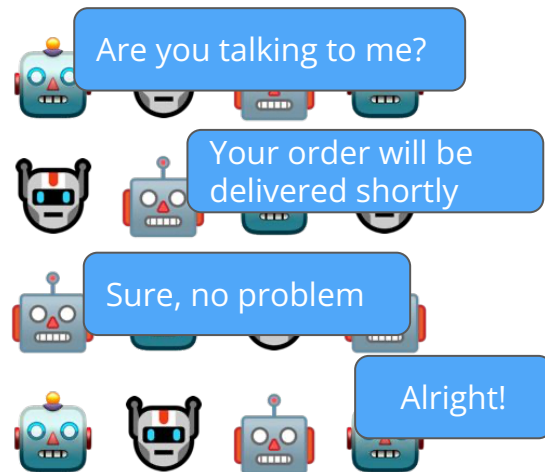


German AIs do not speak Russian, Chinese, etc.

# Problem 3: How will 5 AIs listening agree which one was meant?



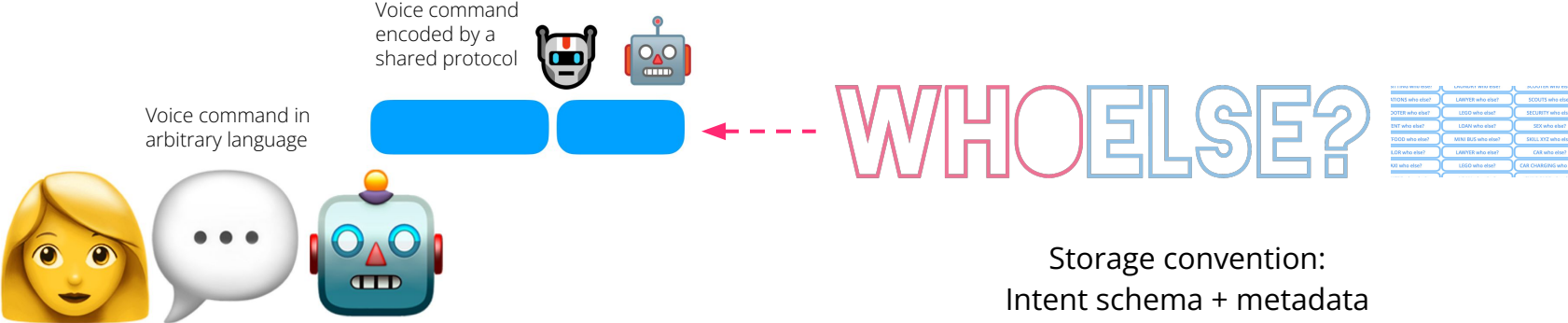
*Alex, what do you think about ordering Pizza?*



Our Expertise

# Standards for AI interoperability

# Focus: We develop shared languages between AI technologies



# Idea: whoelse.ai becomes an exchange to forward intents

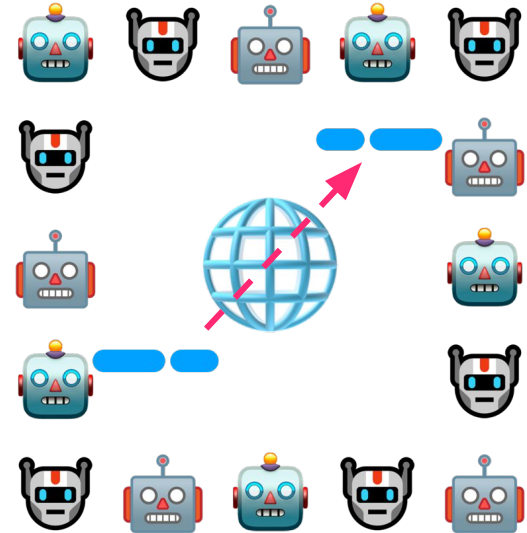


*AI, I want to file my income tax*

*I have no clue what you talk about, but I find the right AI*



*Welcome at PWC, how can I help you?*



Als can find other Als suited to respond

# Offer: A common address namespace for all AIs

Mindmeld

Bert

Fraunhofer

Houndify

Watson

Mycroft

Credence

Houndify

Bosch



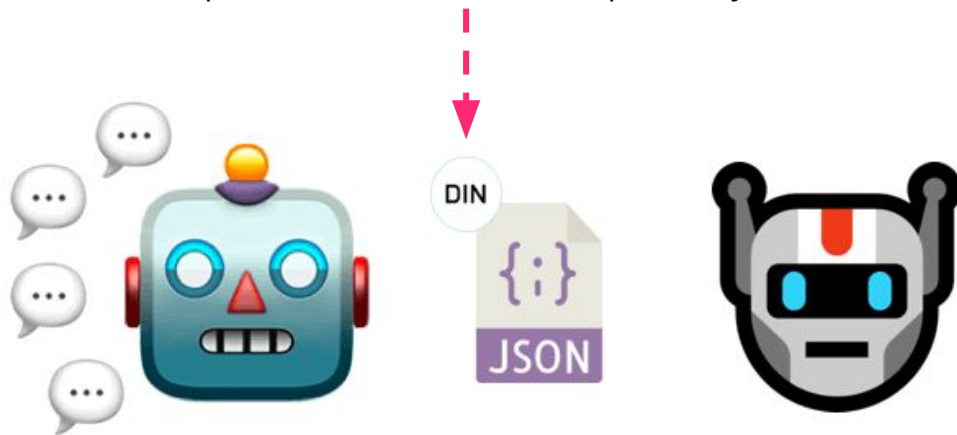
# WHOELSE?

ACCOUNTANT who else?	CYCLE who else?	HOSTEL who else?	RENOVATION who else?	CLOTHING SWOP who else?	GAS STATION who else?
APARTMENT who else?	CYCLE COURIER who else?	HOTEL who else?	RENTALS who else?	CONCERT who else?	
ASSISTANT who else?	CYCLESHP who else?	HOUSE who else?	REPAIRSHOP who else?	COPYSHOP who else?	
ASTRONOMY who else?	DATE who else?	INSURANCE who else?	RIDESHARE who else?	COUSINE who else?	
BABYSITTER who else?	DELIVERY who else?	JANITOR who else?	SALE who else?	COWORKING who else?	
BAND who else?	DELIVERY who else?	JOB XYZ who else?	SCHOOL who else?	CRAFTSMAN who else?	
BANK who else?	DOCTOR who else?	KINDERGARTEN who else?	SCHOOL who else?	CYCLE who else?	HOBBY who else?
BARBEER who else?	DOG-SITTING who else?	LAUNDRY who else?	SCOOTER who else?	CYCLE COURIER who else?	HOSTEL who else?
BARBEER who else?	DONATIONS who else?	LAWYER who else?	SCOUTS who else?	CYCLESHP who else?	HOTEL who else?
BOARD GAME who else?	E-SCOOTER who else?	LEGO who else?	SECURITY who else?	DATE who else?	HOUSE who else?
BOOK CLUB who else?	EVENT who else?	LOAN who else?	SEX who else?	DELIVERY who else?	INSURANCE who else?
CASH who else?	FASTFOOD who else?	MINI BUS who else?	SKILL XYZ who else?	DELIVERY who else?	JANITOR who else?
CINEMA who else?	TAILOR who else?	LAWYER who else?	CAR who else?	DOCTOR who else?	GARAGE who else?
CITY who else?	TAXI who else?	LEGO who else?	CAR CHARGING who else?	DOG-SITTING who else?	GARDENING who else?
CLEANER who else?	THEATRE who else?	LOAN who else?	CHILDCARE who else?	DONATIONS who else?	GAS STATION who else?
CLIMATE CHANGE who else?	TIMBERMAN who else?	MINI BUS who else?	FLAT-SHARE who else?	JOB XYZ who else?	UNIVERSITY who else?
CLOTHING SWOP who else?	TOYS who else?	MOVERS who else?	FLEA-MARKET who else?	KINDERGARTEN who else?	WORKERS UNION who else?
FOUND&LOST who else?	E-SCOOTER who else?	MUSIC who else?	FOOD-SHARING who else?	LAUNDRY who else?	WORKSHOP who else?
GARAGE who else?	EVENT who else?	NOTARY who else?	MOVERS who else?	PSYCHOLOGIST who else?	JOB XYZ who else?
GARDENING who else?	FASTFOOD who else?	NURSSE who else?	MUSIC who else?	REFUGEE who else?	COPYSHOP who else?
GAS STATION who else?	FLAT-SHARE who else?	OPERA who else?	NOTARY who else?	RELIGION who else?	CITY who else?
GAY who else?	FLEA-MARKET who else?	PAINTER who else?	SPORTS who else?	PAINTER who else?	LEGO who else?
NURSSE who else?	FOOD-SHARING who else?	TRAINER who else?	STARTUP who else?	PEISITING who else?	DOCTOR who else?
OPERA who else?	FOUND&LOST who else?	TRAVELLING who else?	STREET who else?	PHONE REPAIR who else?	CINEMA who else?

AIs can look up (i) how to store language-based requests, (ii) which other AIs are available

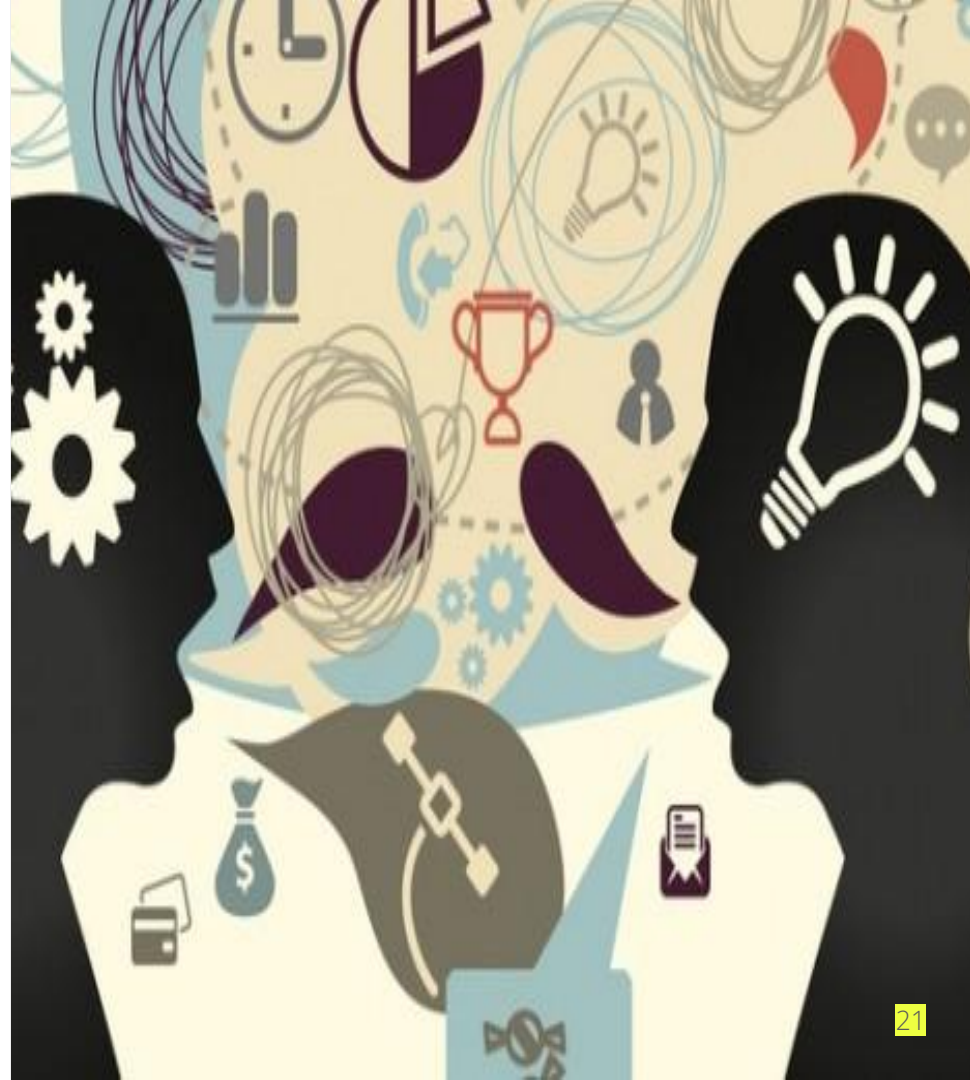
# Go-2-Market: We setup industry standards for AI interoperability

ISO-DIN consortiums agree on shared API specifications for NLP interoperability

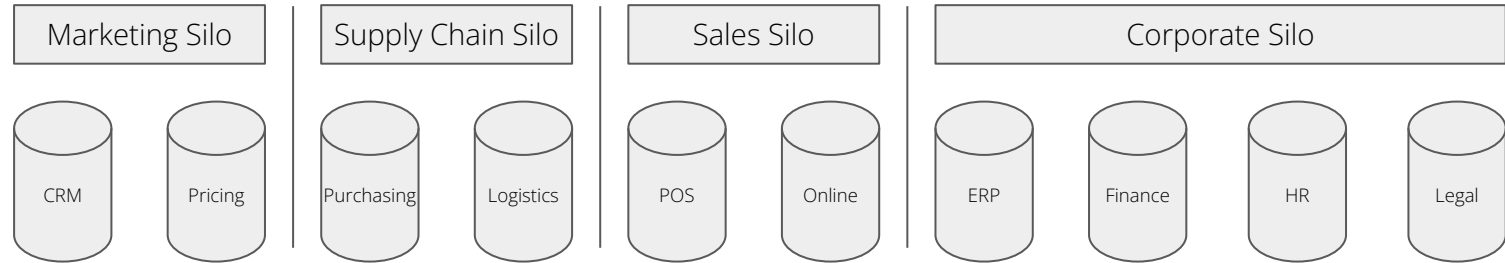


# Next: Companies must turn human knowledge into AI

Prepare you company for a conversational  
intelligence workforce

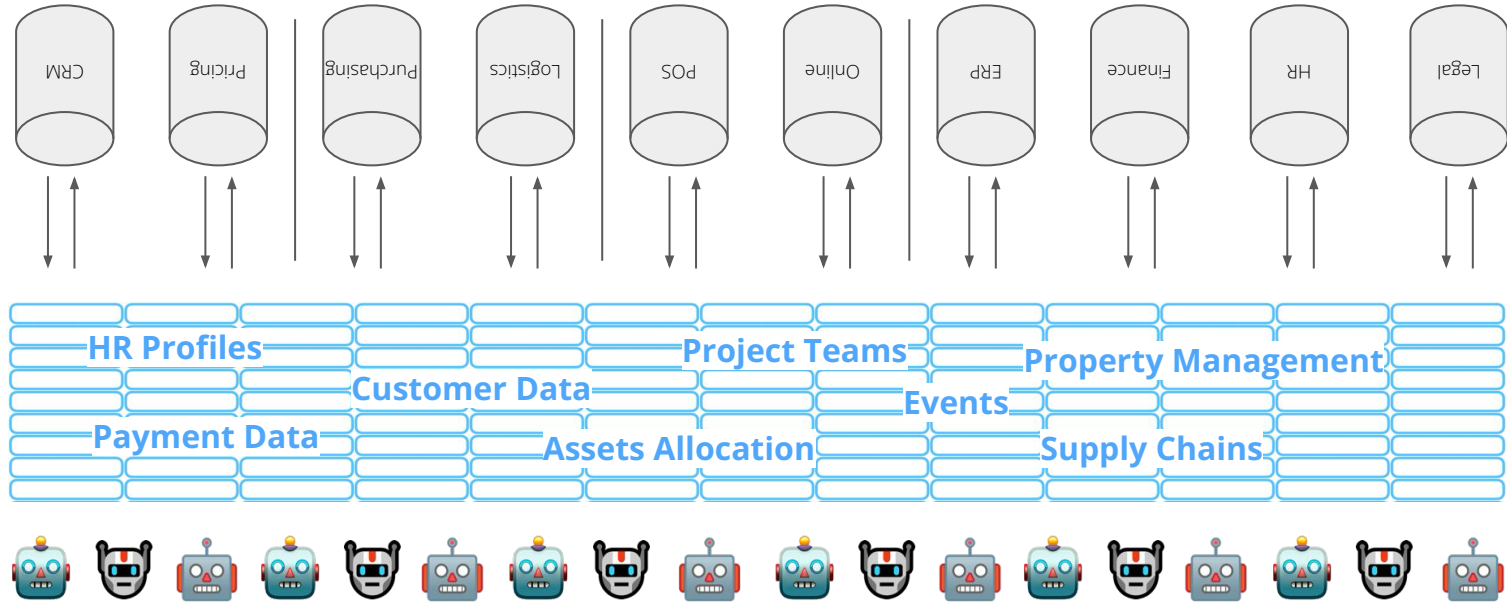


# Problem: Corporates are data silos





# To do: Turn your data silos into conversational AI know-how



Prepare to use multiple AIs by organizing your knowledge in a AI compatible language



# Vision? Companies share a data standard, but keep custom AIs

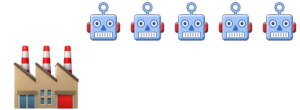
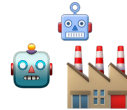
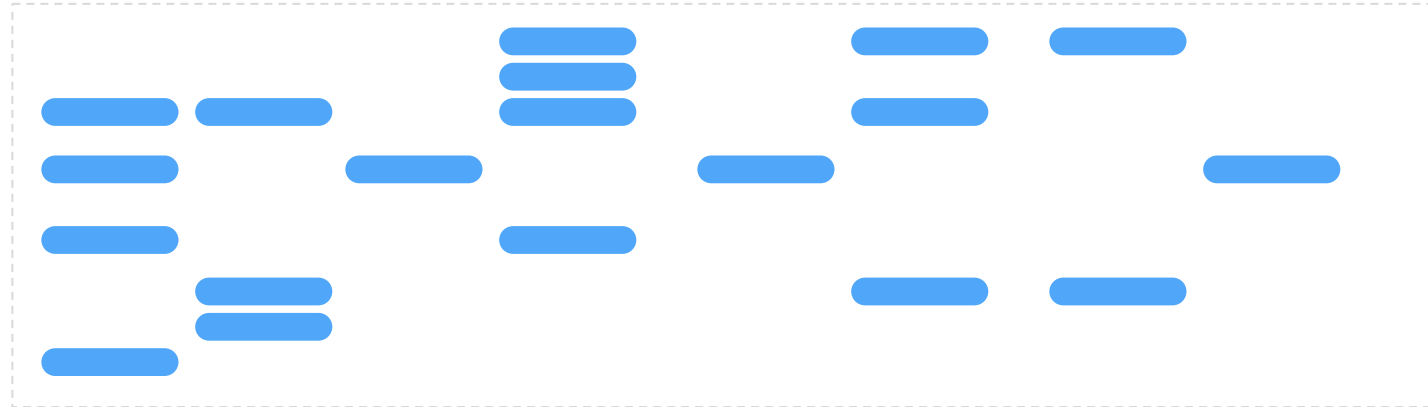


# Advantage: Supply chains based on AIs interoperability

Find me experts  
in X,Y,Z

I am looking to rent  
space for A,B,C

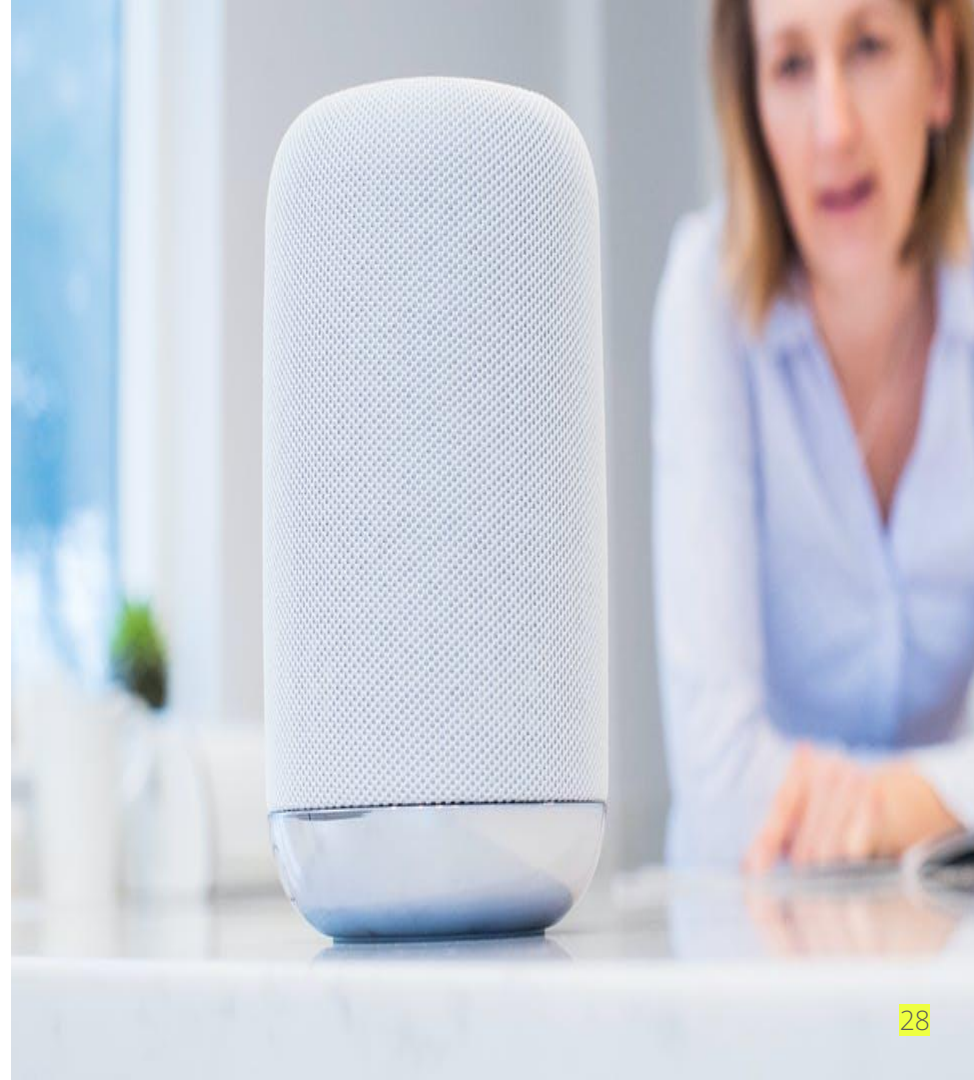
I am looking for a  
manufacturer



Industry partners exchange information by  
a standardized format

# Soon: Users can say whatever they want to AIs

whoelse.ai builds an open search index  
for conversational AIs

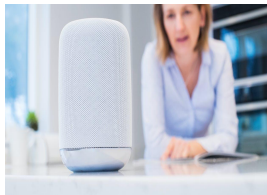


# SaaS offering: Always find the best AI available

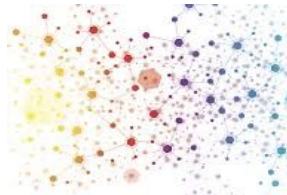
## WHOELSE?

Today

Next



Voice Assistants



Data Mining

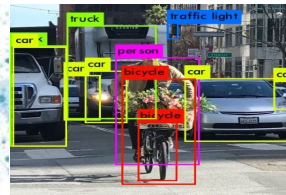
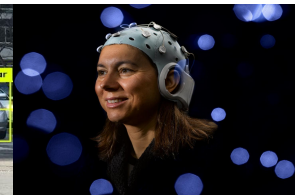


Image Analysis



Brain Machine Interfaces

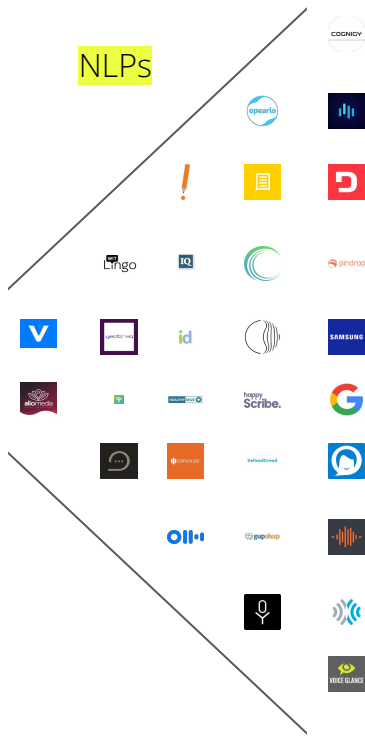
# USP: OEMs use a shared NLP schema across languages & AIs



# WHO ELSE?

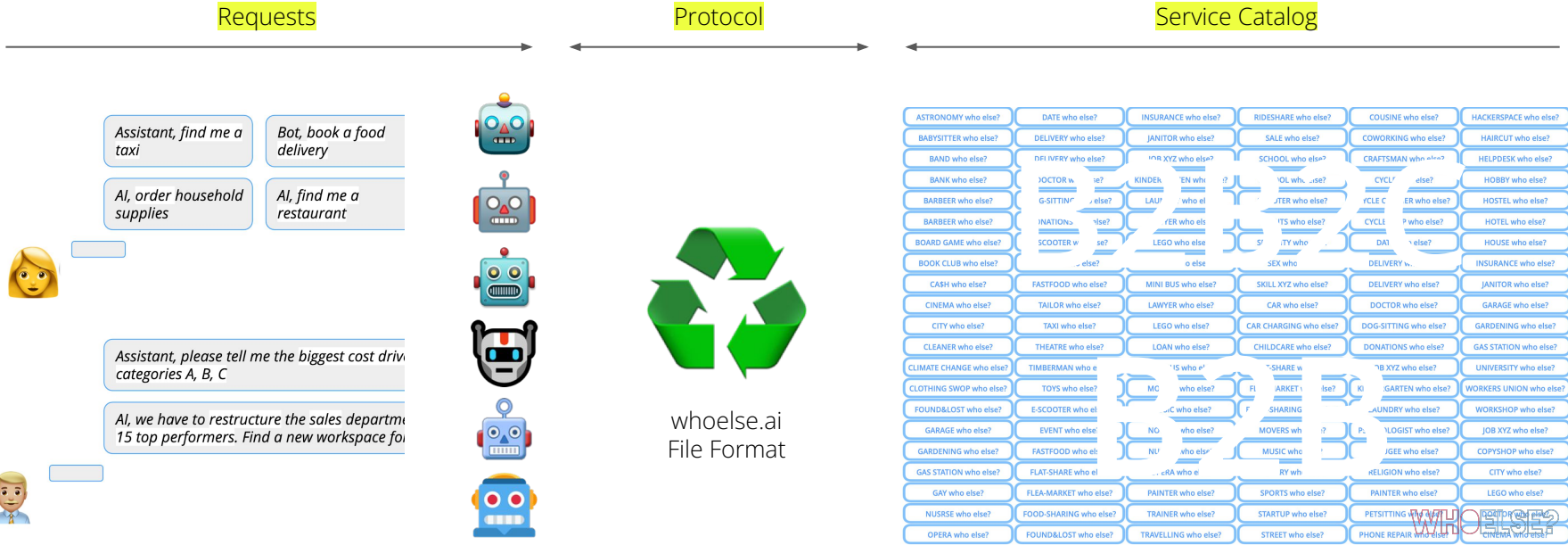


NLPs



- ACCOUNTANT who else?
- Intent Catalog
- ASSISTANT who else?
- ASTRONOMY who else?
- BABYSITTER who else?
- BAND who else?
- BANK who else?
- BARBEER who else?
- BARBEER who else?
- BOARD GAME who else?
- BOOK CLUB who else?
- CA\$H who else?
- CAR who else?
- CAR CHARGING who else?
- CHILDCARE who else?
- CINEMA who else?
- CITY who else?
- CLEANER who else?

# Product: AIs can look up each other to share requests



A shared intent index for all kinds of conversational AIs

## B2B2C Use Cases

Als find answers to all questions a user might have

# Everything becomes a smart speaker

## Voice assistants in everyday objects



Alarm Activation

Food Delivery

Lightswitch

"Hey Television, turn on the light in our garden.  
Then order food from Dominos, afterwards make  
sure the alarm system is activated."

## Voice assistants where we spend a lot of time



Concert Ticket

Office Colleagues

Greek Restaurant



"Hey BMW, find me a greek restaurant for  
tonight!"

"Hey BMW, is there a concert nearby?"

"Hey BMW, is somebody still in the office?"

# Hotlines that combine multiple AIs

## Hotlines become voice assistants



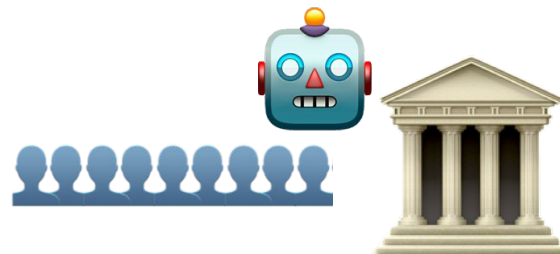
Electricity Bill

Phone Support

*"Can the Deutsche Telekom customer support help you anyhow else, Rosi?"*

*"Yes, please connect we somebody to speak about my electricity bill."*

## Voice AI-based government services



Voice Verification

E- Government

*"Thanks for you unemployment benefit application. Please verify your identity with your voice fingerprint."*

*"I am Sean Conner, my password is..."*

# From buildings to education - voice AI is everywhere

## Voice commands for smart buildings

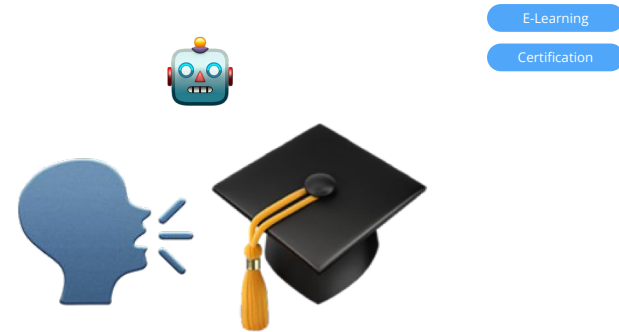


*"To which floor do you want to go?"*

*"I am looking for **meeting room 306**."*

*"Go to the 3rd floor and go right."*

## Voice AI-based education



*"In order to pass the exam. Please **explain briefly** the function of exponential curves"*

*"It can be best illustrated by.."*

B2B Use Cases

Organisational data  
becomes interoperable

# Data engineering advantage: Cross referencing of NLP data

## Mining of financial transaction data



“How many people paid something relating to COVID-19 or had unusual transactions. Who of our customers receive state benefits?”

## Contact tracing



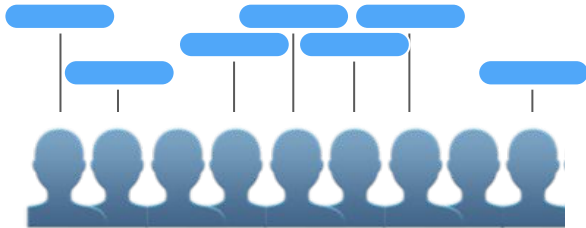
“AI, find all employees who had contact with person ABC during the past 3 weeks.”

# Opportunity: Information sharing without competition laws

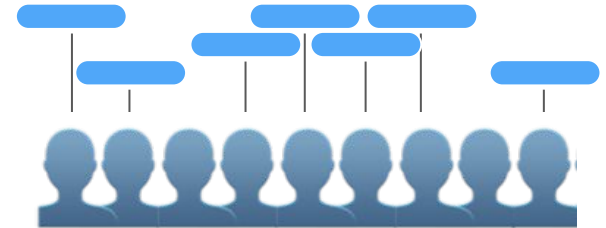
Competitor 1



*"AI, find all people with background in civil engineering, < 45 years, and able to relocate"*

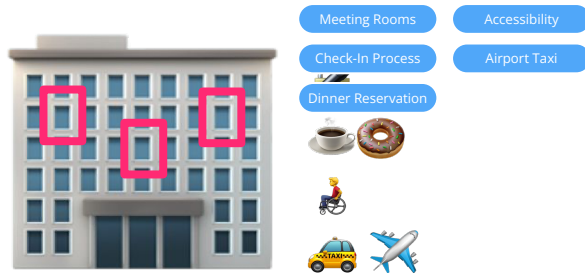


Competitor 2



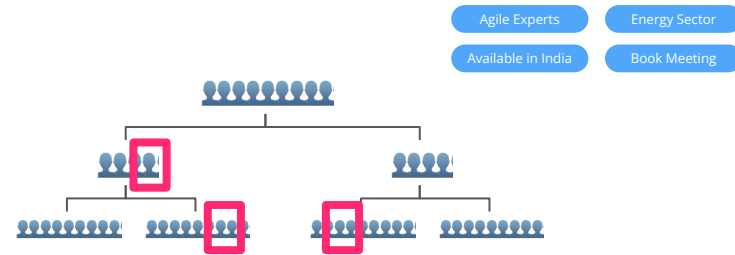
# AI-driven processes: Optimize supply chains and organisations

## Supply chain & operations management



"AI, find me an available meeting space and book catering for 15 people. One person has a wheelchair. Make sure everybody is registered at the frontdesk. Please order taxis to the Airport afterwards. Book them a nice lounge."

## HR & ERP management



"AI, find all experts for agile project management in the energy industry and available to travel next month to India. Book their calendars for a Zoom call next week."

Next Steps

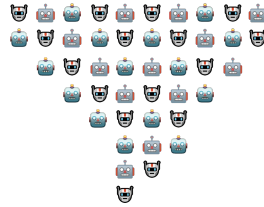
Discover the potentials of  
conversational AI in your  
organisation

# Pilot process: Identification of use cases & roll-out of standards

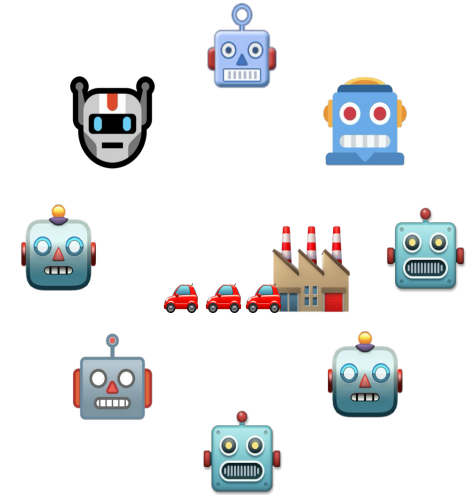
1 Selection of AI use cases in organisation



2 Selection of AI vendors and use case champions

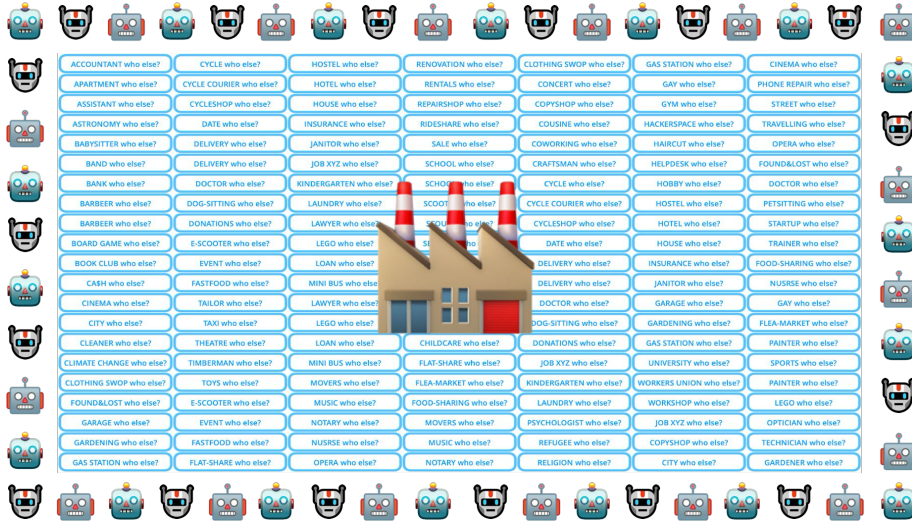


3 Implementation of enterprise-specific intent catalog



Goal: Launch of multi-vendor AI integrations

# Benefit of standards: Always use the best technology available



✓ Fast & low-cost integration  
By DIN SPEC 2343 standard for NLP API interoperability

✓ Future proof  
Ensure long-time interoperability of your AI investments

✓ Know-how interoperability  
Utilize organisational intelligence by sharing data lakes