

# WHOELSE?



Make AIs talk to each other!

A shared language for conversational AIs

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# New normal: People talk to machines

HORIZONT

FIRE TV

## Amazon and Grundig announce the first Alexa TV

from HORIZONT Online / dpa  
Thursday, September 05, 2019



Theme pages for this article:  
AmazonAlexaGrundigremote Controlstreaming  
Marc Whitte traditional brand

Amazon relies more on TV service via voice

Talking to the TV more often instead of using the remote control is part of Amazon's vision for the TV future. For the first time, a TV set microphones for voice assistant Alexa integrated. It bears the name of a German traditional brand.

BMW GROUP THE NEXT 100 YEARS 



Chatbots, cars, smart speaker, fridges, wearables, hotlines, ticket machines..

# A new kind of gatekeeper war: Who owns the



## Press release

Amazon and Leading Technology Companies  
Announce the Voice Interoperability Initiative

September 24, 2019 at 11:04 AM EDT

*Amazon, Baidu, BMW, Cerence, ecobee, Microsoft, Orange, Salesforce, SFR, Sonos, Spotify, Sound United, Tencent, Verizon and more to promote customer choice by supporting multiple, interoperable voice services on a single device*

*With multiple, simultaneous wake words, customers can access multiple voice services by simply saying the corresponding wake word – from Alexa and Cortana to Orange's Djingo, Salesforce's Einstein, and more*

*Solutions providers like Intel, MediaTek, NXP and Qualcomm to develop hardware and reference solutions that support multiple wake word engines*

## Standard Agreement



## Namespace System

Als are selected by trigger words:  
Hey Alexa! Hey BMW! Hey Magenta!

## Problem

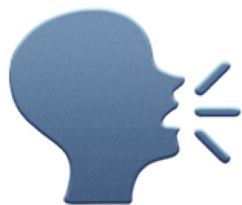


## Verbal Discoverability

Users recall less than  $\emptyset$  3.7 brands

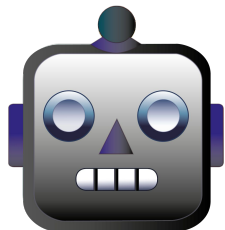
**Q.: How will Mercedes and BMW agree who owns the command "ride-sharing"?**

Year 2025: Every 1st customer contact will be a bot



## Voice becomes UI #1

words replace buttons & keys



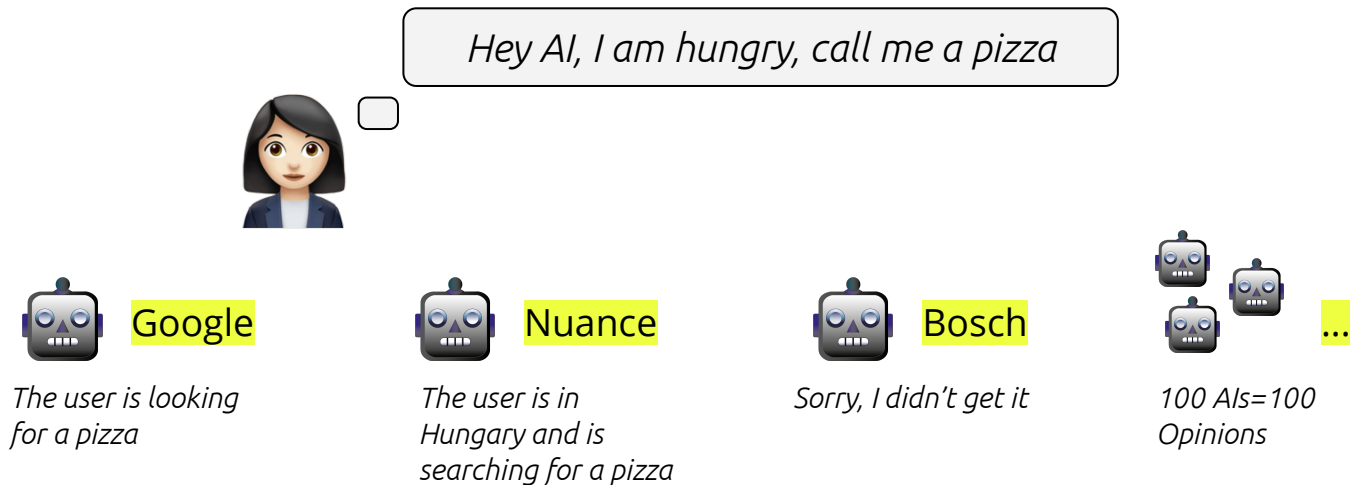
## \$55bn e-commerce opportunity

in conversational AIs

Gartner

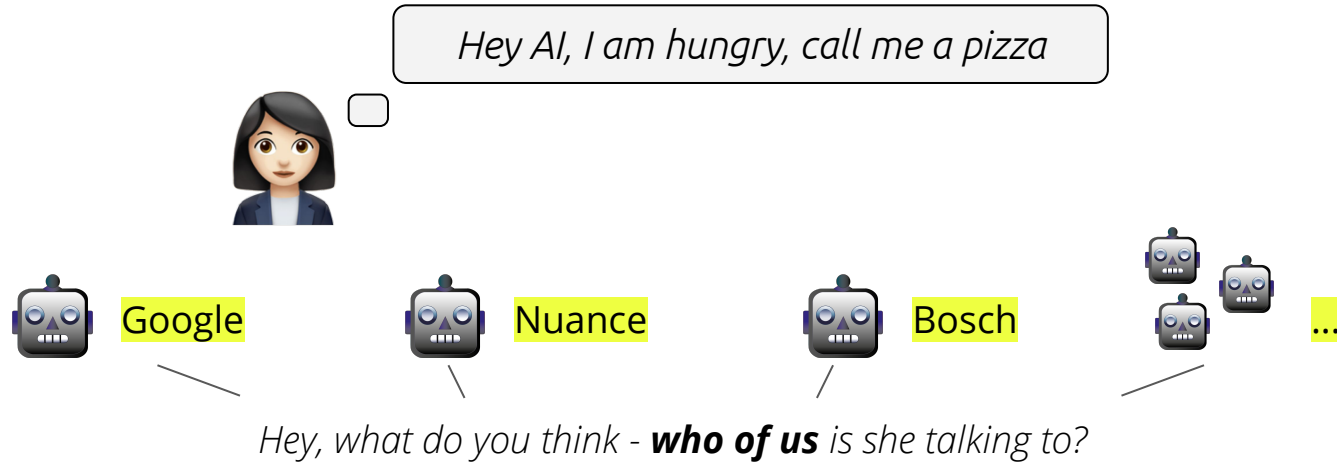
But "Voice Internet" is right now only a linguistic usability mess..

# Problem: AI bias. And: Every AIs has a different bias!



Problem 1: All NLPs understand human speech slightly different

...and how will **different AIs communicate about 1 intent?**

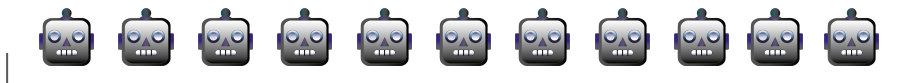


Problem 2: **Concurring data** about user voice inputs

# Dreaming of: A unified language for AIs



*Hey AI, I am hungry, call me a pizza!*



*Let us agree, how we tell it to each other!*

Wish: The Esperanto of AI - a shared language across NLPs

And we could also use some **privacy!**

## Bloomberg

Amazon's "Always on" patent: The future will be recorded, on your smartspeaker



Germany planning to access voice assistant data to tackle crime



41% of voice assistant users have concerns about trust and privacy, report finds

Must have: **Protection of biometric information**

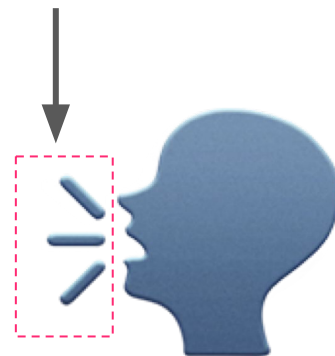
And in the end...

...it's all about **intent!**

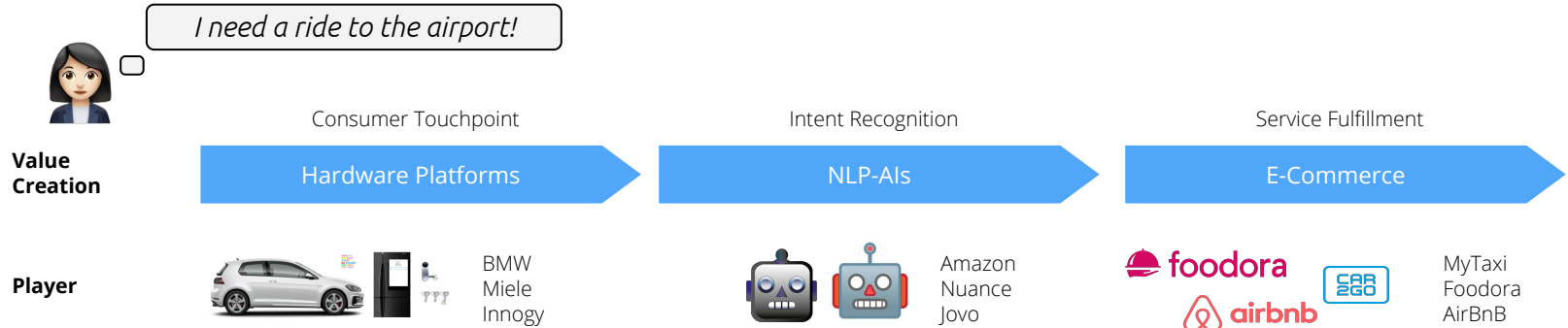
~~How do you say it = Individual syntax, slang, vocabulary~~

Why do you say it = Requested result

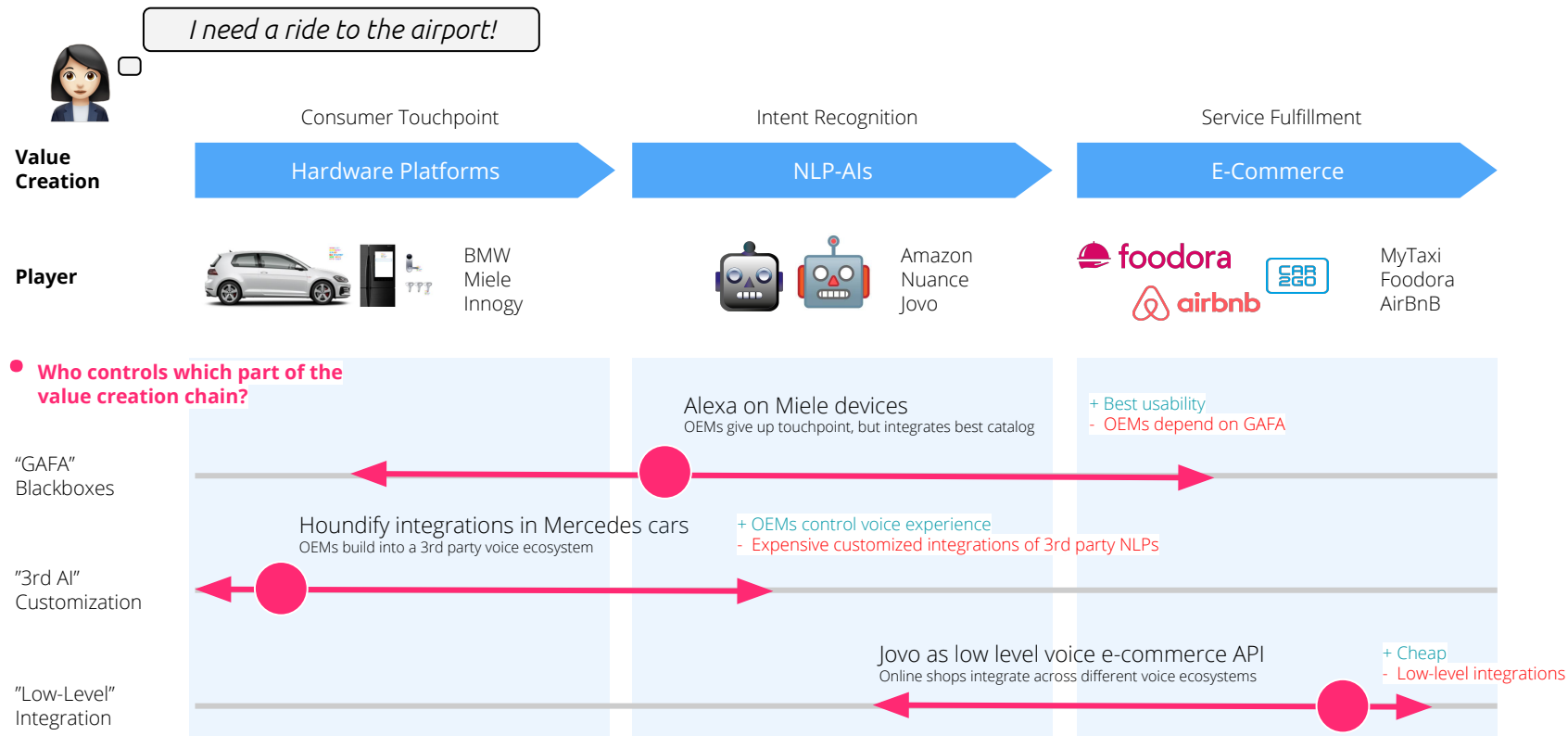
Content of a  
speech command



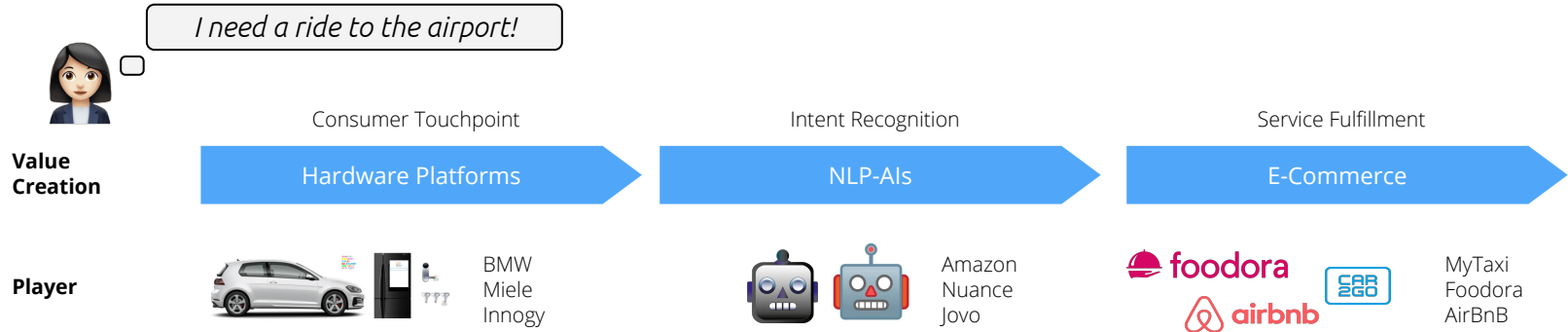
# To do: Reduce complexity!



# Current siloed ecosystems disappoint



# Solution: **whoelse.ai** simplifies language-based AI services



**WHOELSE?** Taxi who else?

**Product** Universal Grammar as shared protocol for NLPs

**DIN ISO**

**Enabler** NLP API interoperability standard initiatives

# Product: A standardised language as shared AI namespace

Examples

Mindmeld



Rasa



Fraunhofer



Houndify



Watson



Mycroft



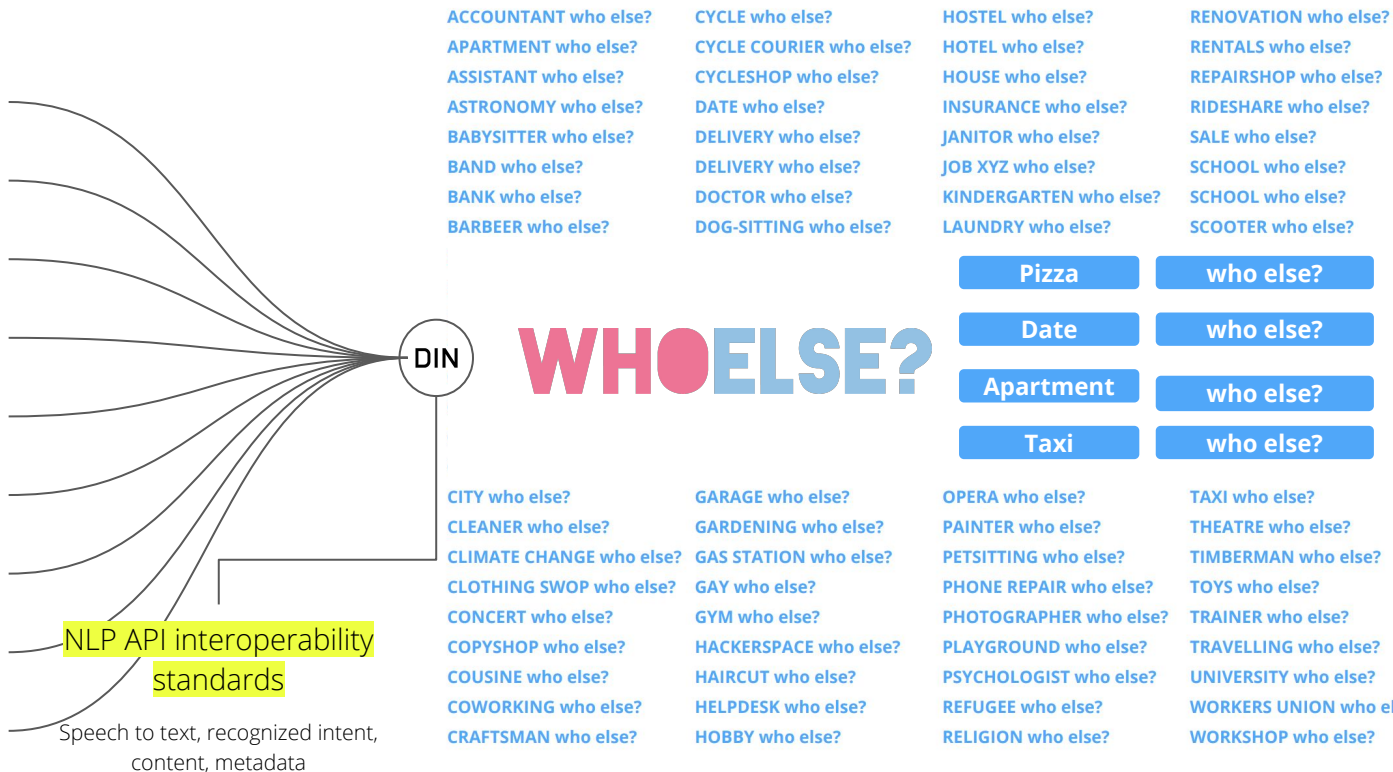
Omnibot



Houndify



Bosch



whoelse.ai

# Technology: Keyword search catalog for spoken language

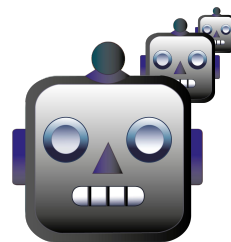


## Natural Language

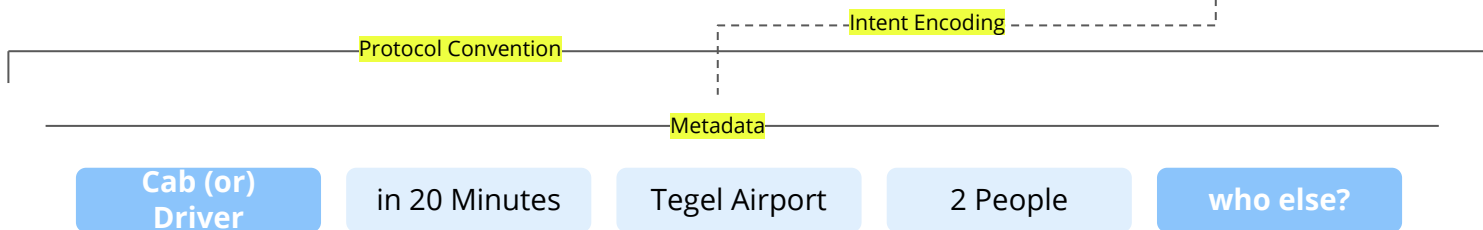
Hey AI, um., I need a ride to the Airport.

For me and my friend.

We need to be there at 16:45. Can you do that?



## Language Catalog



# WHOELSE?

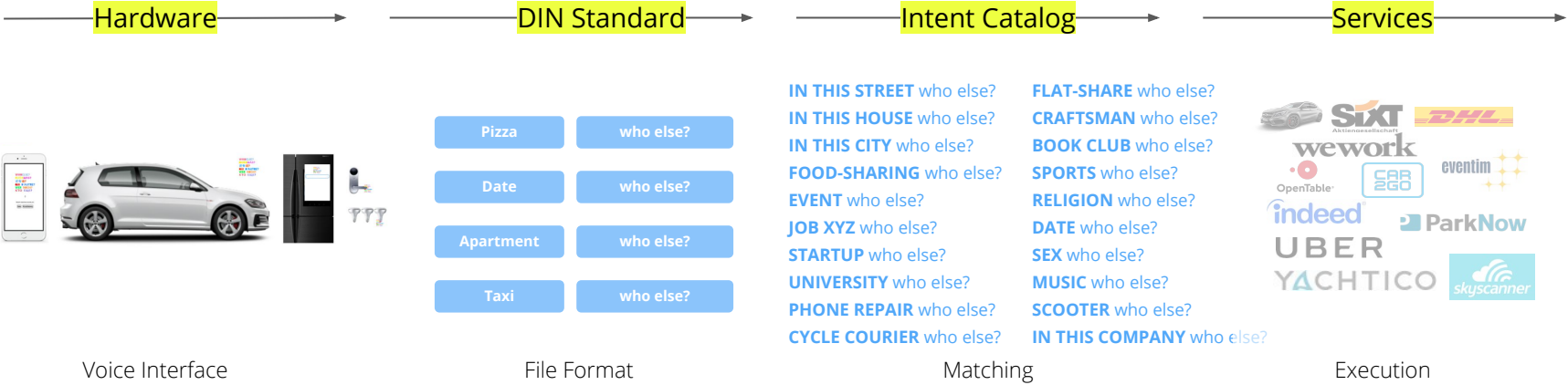
APIs



**Universal Grammar (UG)** NLPs request a data schema to encode intents in a standardized format

**Language Namespace (LNS)** OEMs trade intents received from users by NLP integrations with e-commerce vendors

# Rollout: Market entry by NLP API industry standards



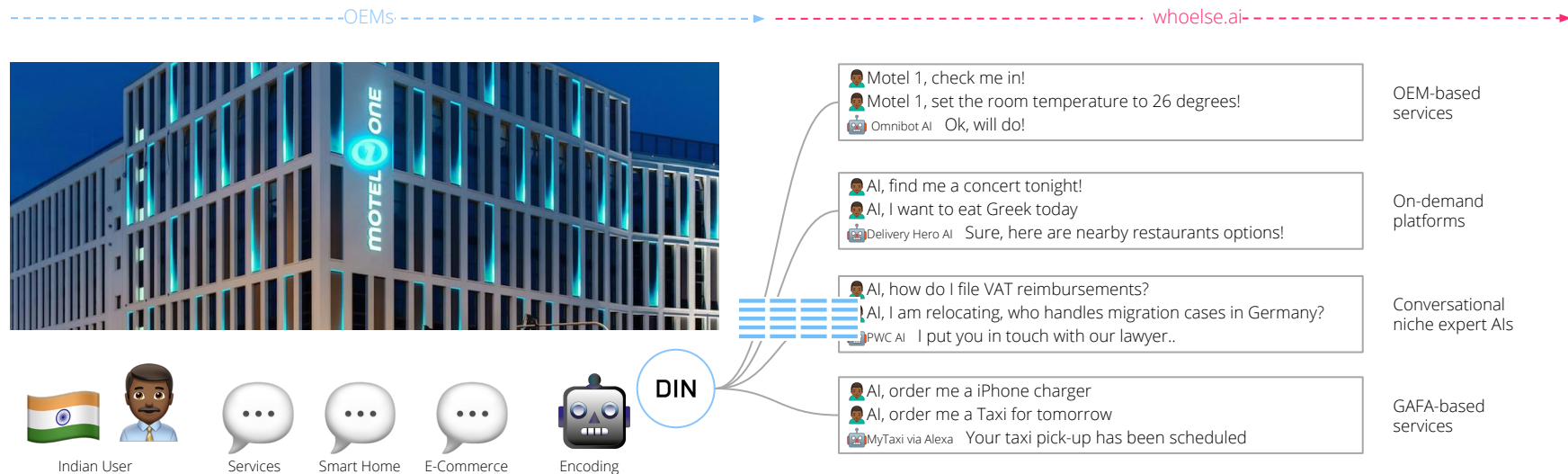
Dream: fulfilled 😎

*Let us agree, how we tell it to each other!*



# B2B use case: Interoperability between conversational AIs

Example: Voice concierge and check-in services in hotels, rental cars, smart homes (..)



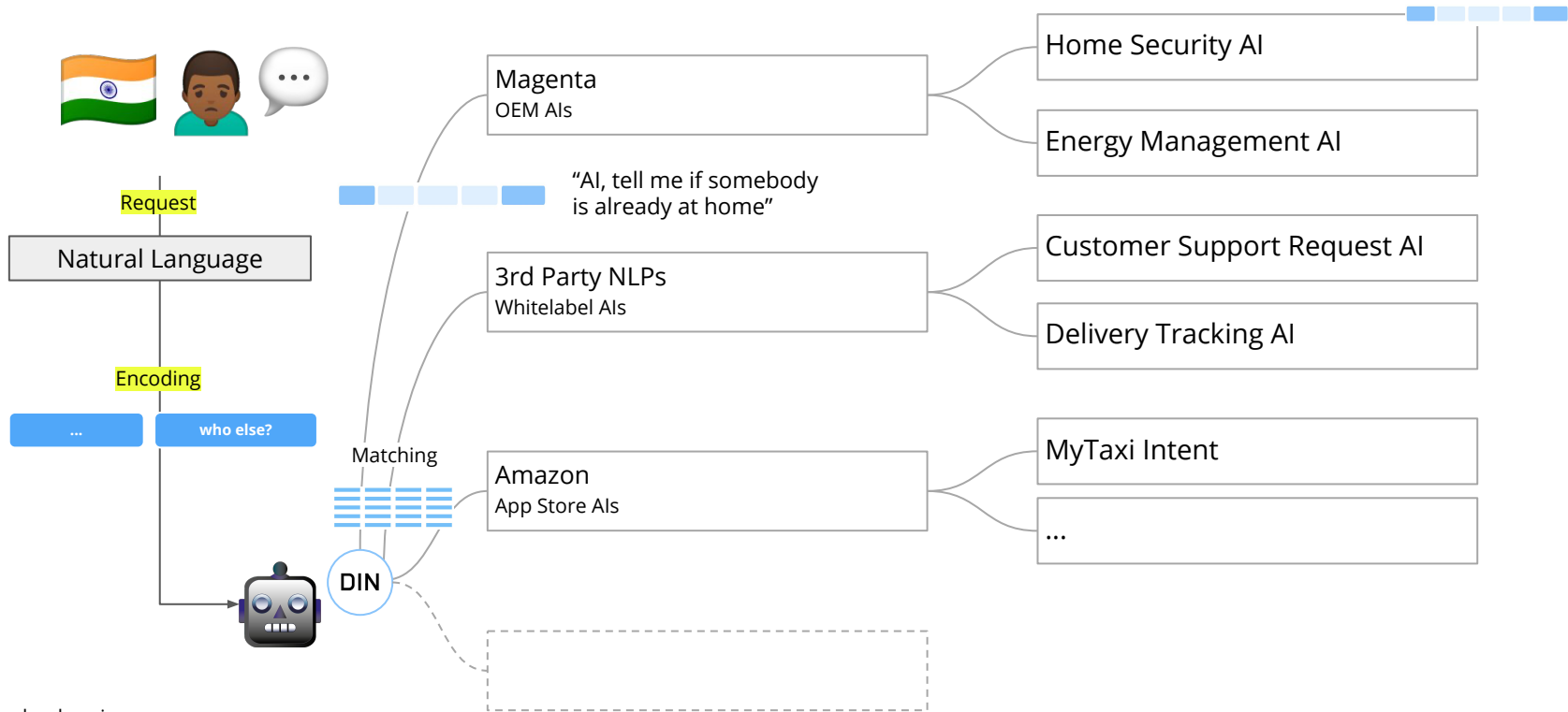
## Challenge

Users speak in foreign language for multiple types of intents

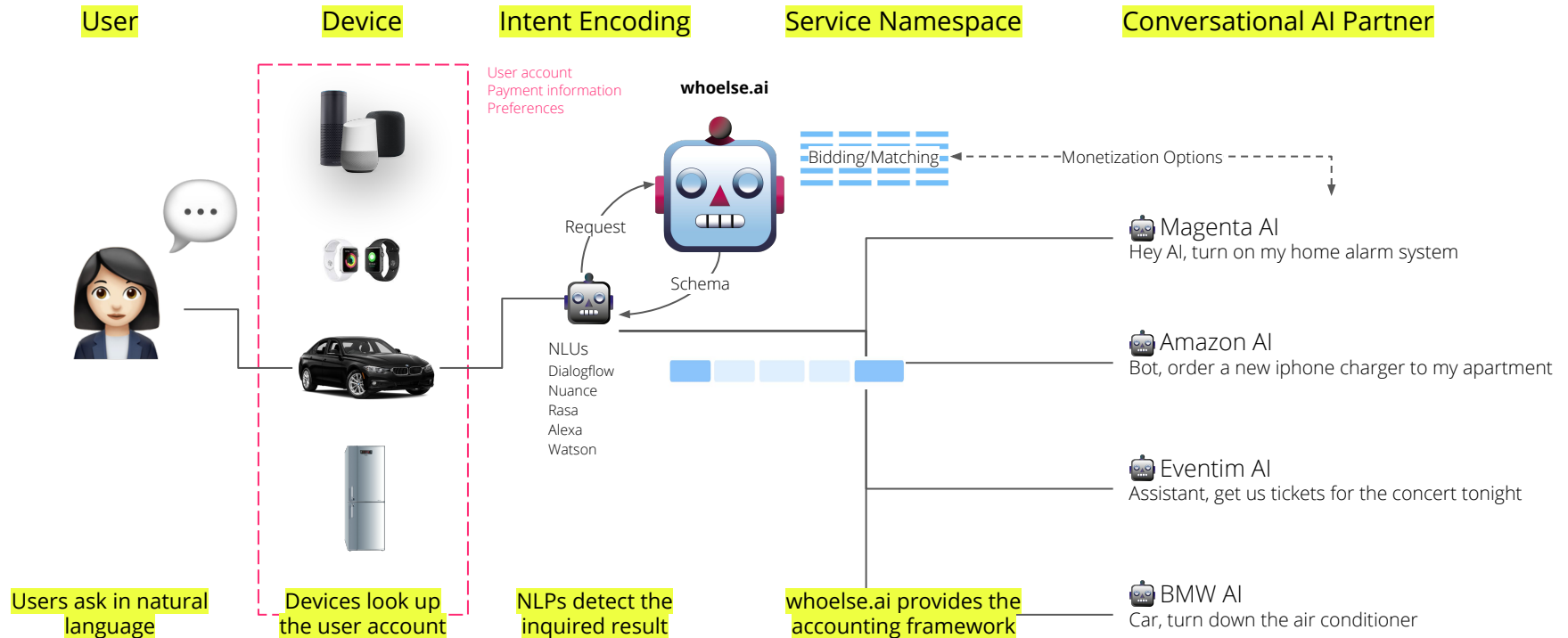
## Solution

Interoperability of conversational AIs and e-commerce solutions

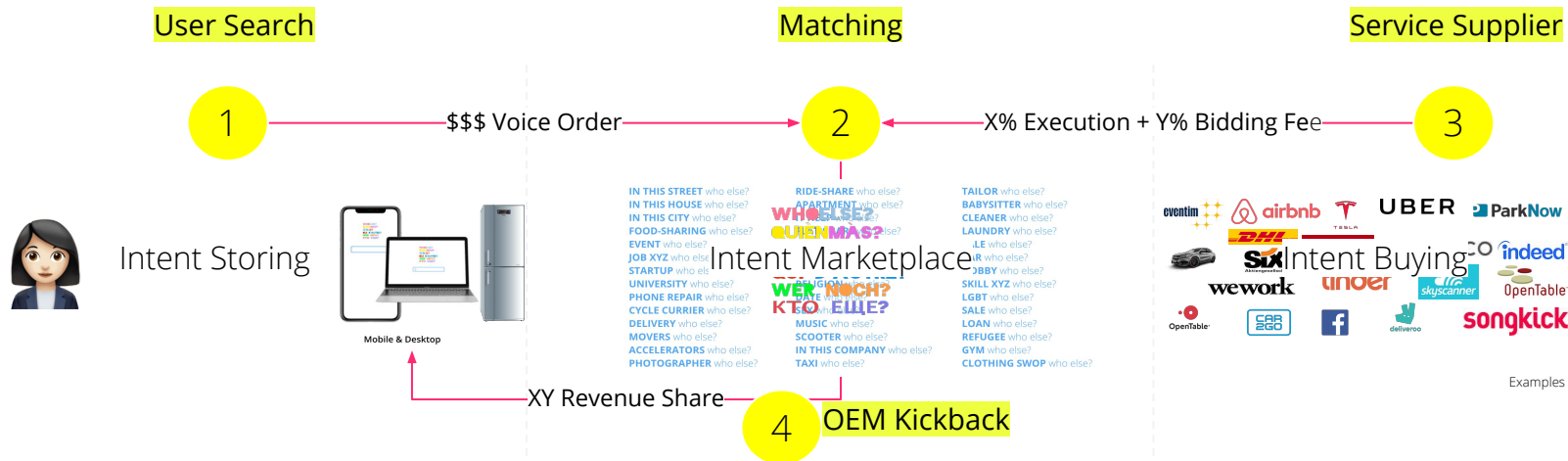
# Advantage: Voice AIs use a shared protocol for service requests



# Innovation: Voice AI search and user account systems



# Monetization: Marketplaces to trade speech-based requests



## Request

“Hey fridge, order Indian food for me!”

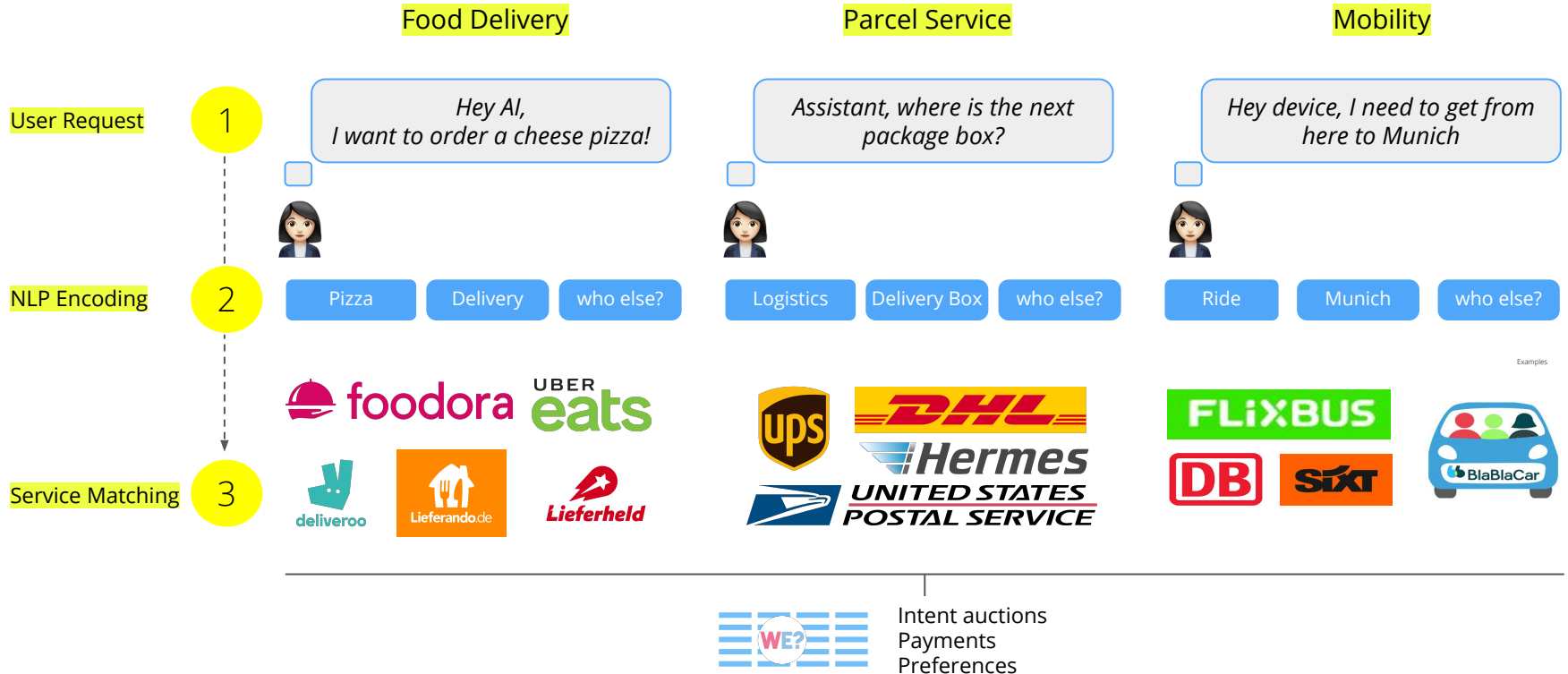
Order Value	\$ 15.00 USD
Kickback OEM 5%	\$ 0.75 USD
Kickback WE 5%	\$ 0.75 USD

## Auction

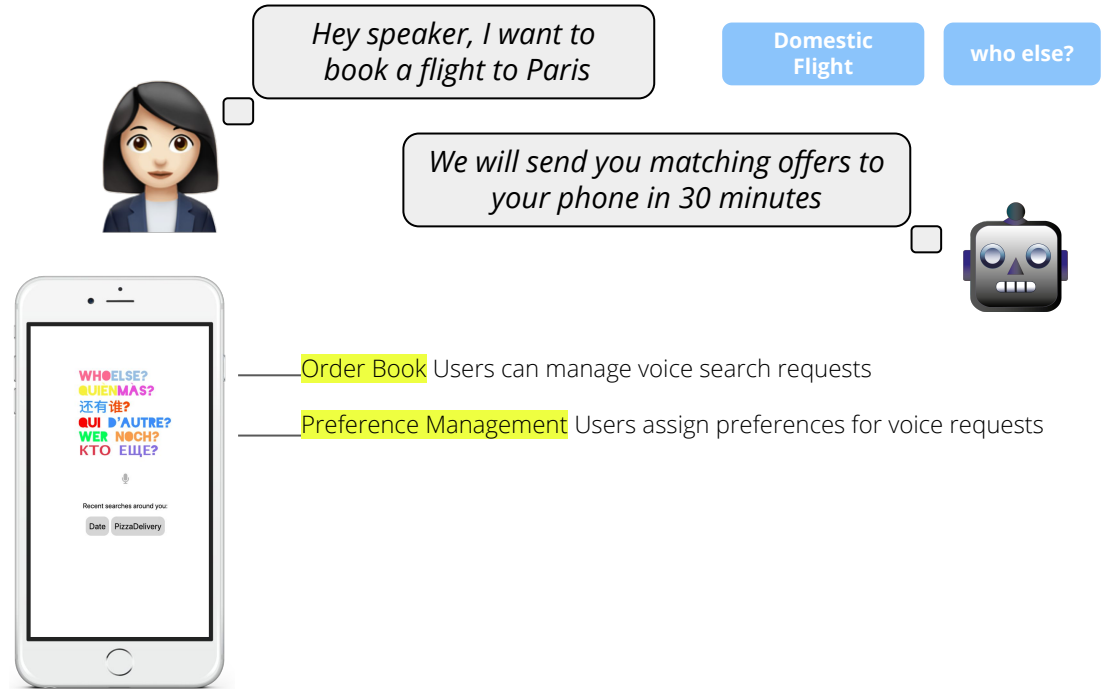
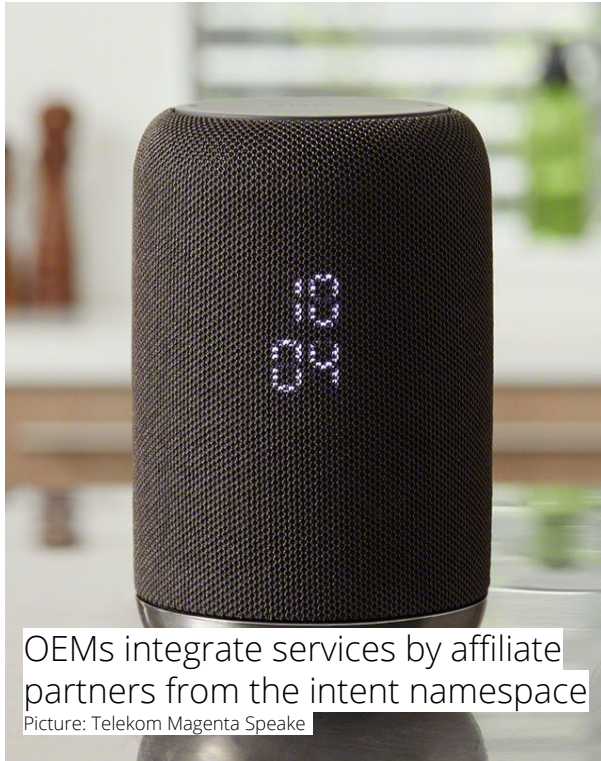
E-commerce providers bid on intents

Vendor A	7%
Vendor B	10% ✓
Vendor C	5%

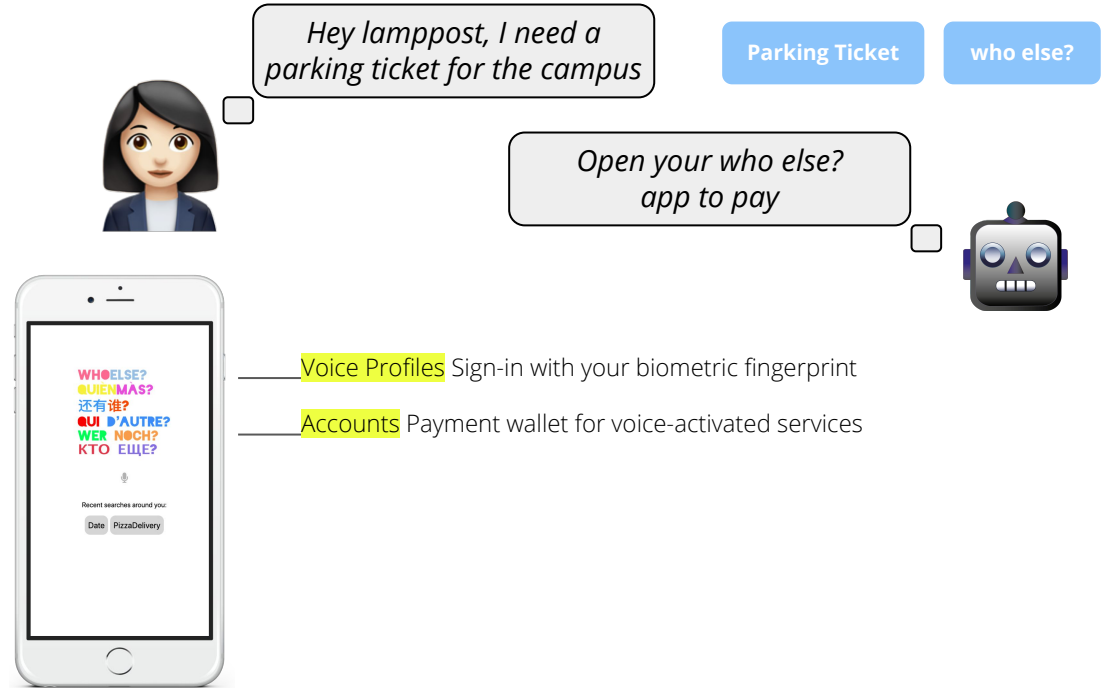
# Business model: Lead generation from voice commands



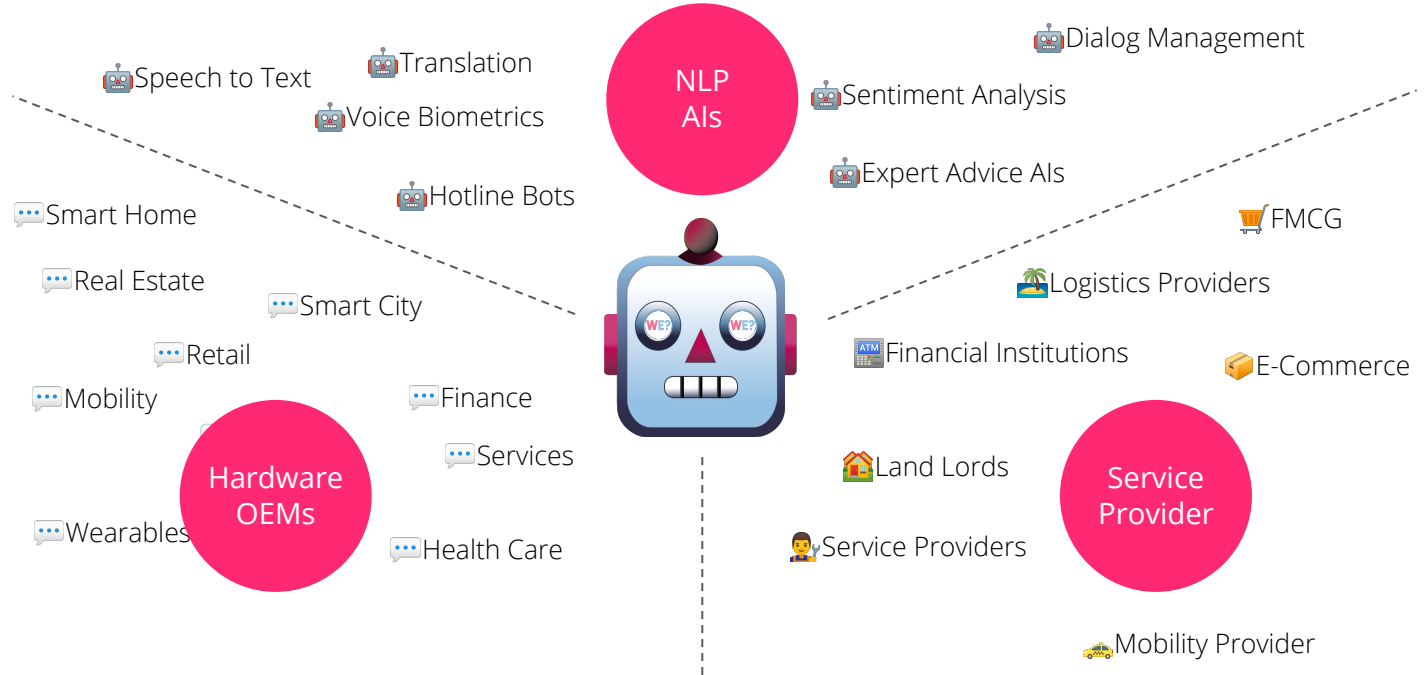
# 1. Example: Personalized voice assistants



## 2. Example: Voice-enabled services in public places



# Ecosystem: Together towards interoperable AI e-commerce

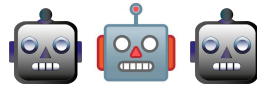


# R+D advantage: Faster localization of voice technologies



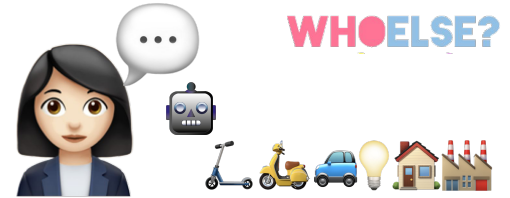
1 Devices with voice interface potential

Cars  
Real Estate  
Appliances  
Shared Mobility  
Logistics  
Charging Stations  
Logistics  
Electricity  
Car Sharing  
Smart Home



2 Selection of NLP technologies

Energy Efficiency  
Multimedia Services  
Industry Applications  
Model Adaptability  
IoT Applications  
Fraunhofer  
Houndify  
Bosch  
Rasa  
McCroft

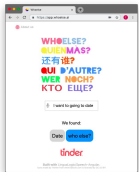






3 Integration with namespace services

**IN THIS STREET** who else?  
**IN THIS HOUSE** who else?  
**IN THIS CITY** who else?  
**FOOD-SHARING** who else?  
**EVENT** who else?  
**JOB XYZ** who else?  
**STARTUP** who else?  
**FLAT-SHARE** who else?  
**CRAFTSMAN** who else?  
**BOOK CLUB** who else?  
**SPORTS** who else?  
**RELIGION** who else?  
**DATE** who else?  
**SEX** who else?

Enabler: DIN, ISO, IEEE (...) standards

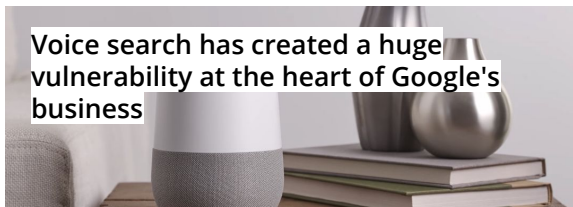
# Traction: AAA+ partners, pilots, and media attention

09-12/2018	01/2019	03/2019	10/2019	11/ 2019	2020
Namespace Prototype	DIN Commission	Angel Supporter	Industry Recognition	whoelse.ai x Telekom	<b>Roadmap &amp; Goals</b>
50+ services integrated	12+ confirmed partners 25+ in update loop	TLD entrepreneurs .whoelse.ai in 2021	Announcement of protocol initiatives	Winter 19 intake of Hub:raum (AI Track)	Launch of whoelse.ai consumer products Mobile apps, smartspeaker, voice assistants, hotlines, smart home, wearable tech
<a href="http://app.whoelse.ai">app.whoelse.ai</a>	<a href="http://din.de">din.de</a>	<a href="http://dotzon.com">dotzon.com</a>	<a href="http://oreilly.whoelse.ai">oreilly.whoelse.ai</a>	<a href="http://hubr4um.whoelse.ai">hubr4um.whoelse.ai</a>	Go-live whoelse.ai intent marketplace B2C affiliate partner integrations, B2B use cases, conversational e-commerce interoperability
					ISO-DIN standards for NLP API interoperability Internationalization of standards initiatives, organization of industry alliance (open source)

# Exit paths: OEM acquire us for brand and/or patent IP

(1)

Companies (search engines, classifieds) with voice discoverability risks



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. Today, Google may be at the beginning of a new shift — one toward artificially intelligent virtual assistants, in which we use our voice to interact with technology instead of our eyes. The problem with voice assistants is they don't have a screen on which to display ads.

[Business Insider](#)

(2)

As multi-industry AI IP research lab (c.f. OpenAI)



Roughly three months ago, Facebook launched a \$25m call for research proposals in three subfields of natural language processing (NLP), the cross-disciplinary study of linguistics and AI concerned with computer-language interactions. It specifically sought “robust” deep learning approaches for NLP and computationally efficient NLP in addition to neural machine translation for low-resource dialects, ultimately in the pursuit of advancing cutting-edge research in machine translation. That was just the start, it would seem. In a blog post today revealing 11 winning proposals among the 115 submitted from 35 countries, Facebook announced the AI Language Research Consortium, a community of partners it says will “work together to advance priority research areas” in NLP.

[Venturebeat](#)

(3)

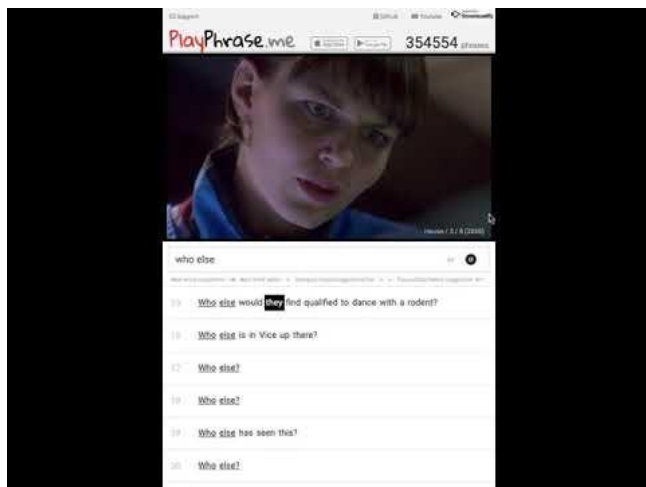
To OEMs and/or technology standards alliances



(.) Ideally, IoT devices would simply have a standard way to communicate, so users wouldn't have to worry about making sure every product works together. Some companies, such as Microsoft, Qualcomm, Samsung, and Intel, are now trying to figure out how to make that happen. Even so, the ambitious goal of a common Internet of Things language is starting to seem like a Tower of Babel. Over the last year, tech titans like Apple, Google, and Amazon have built up their own ways of connecting to vast numbers of smart home products, and these companies have shown little interest in standardization. As these platforms gain traction, is it too late for a unified language to take hold?

[Fast Company](#)

# Secret sauce: Language hard-wired in the human



## WHO ELSE?

**Universal Grammar (UG)** is a theory that suggests that some rules of grammar are hard-wired in the brain, and manifest with being thought.

Who else? Wer noch? Quién más? (..) questions exhibit properties of UG. It is language that is universal understood and available to everybody.

Read more: <http://whitepaper.whoelse.ai>

# Learn more!

**O'REILLY**  
Artificial Intelligence Conference  
powered by intel AI

Idea: A new standard to encode intent

Mindmeld  
Rasa  
Fraunhofer  
Houndify  
Watson  
Mycroft  
Omnibot  
Houndify  
Bosch

**WHO ELSE?**

DIN

Interoperable API:  
Speech to Text  
Appointed intent  
Context  
Metadata

A language catalog to store intents in a standardized format

14-17 Oct 2019  
London, UK  
oreillyaiicon.com  
#OReillyAI

## Make AIs talk!

Tobias Martens at O'Reilly AI Europe 2019

CEBIT

## Every first consumer contact will be a bot!

Sven Krüger at Cebit 2018