

WHOELSE?

x

DIN



Make AIs talk to each other!

NEXT STEPS - DIN SPEC 2343

APIs for the transmission of language-based data
between artificial intelligences

23 January 2020

January 2020: DIN SPEC 2343 agreed on harmonized specifications of NLP APIs
The consortium defined (i) required, (ii) optional, and (iii) recommended data fields and API parameter formats for conversational AI technologies (e.g. chatbot and voice assistant technologies)



Intent:
Speech to Text:
Context:
Location:
Language:
Device:
Confidence:
...

[Google Doc](#) Status: Meeting 23.01.2020

Example use case: Motel 1 voice assistant

Hotels use smart speakers to check-in guests and provide additional amenities, services, and e-commerce offerings via a speech-based virtual assistant.



👤 Motel 1, check me in!

👤 Motel 1, set the room temperature to 26 degrees!

🤖 Ok, will do!

Omnibot AI

OEM-based services

👤 AI, find me a concert tonight!

👤 AI, I want to eat Greek today

🤖 Sure, here are nearby restaurants options!

Delivery Hero AI

On-demand platforms

👤 AI, how do I file VAT reimbursements?

👤 AI, I am relocating, who handles migration cases in Germany?

🤖 I put you in touch with our lawyer..

PWC AI

Conversational expert AIs

👤 AI, order me a iPhone charger

👤 AI, order me a Taxi for tomorrow

🤖 Your taxi pick-up has been scheduled

MyTaxi via Alexa

GAFAs-based services

How can intents be dispatched to voice AIs with different expertise?



Indian User



Services



Smart Home



E-Commerce



Encoding

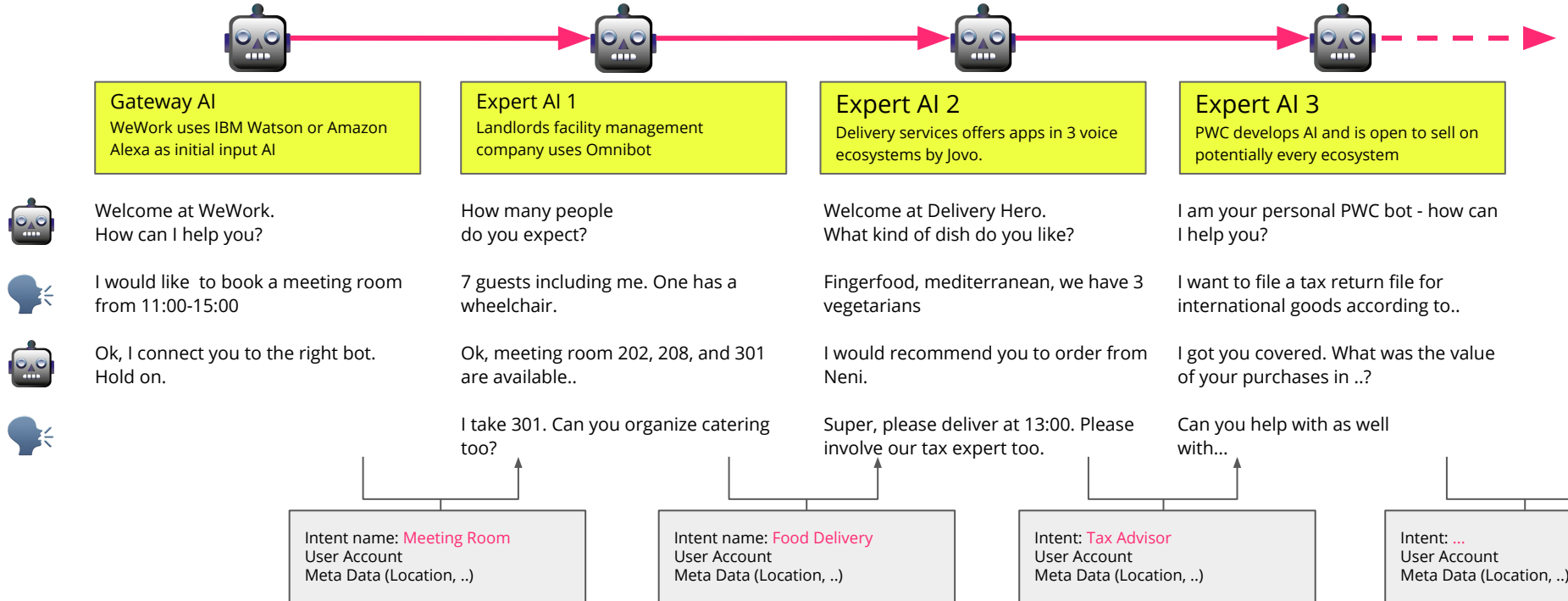
DIN

How can OEMs integrate voice AIs for different input languages?

Result of the DIN standard: NLPs can hand-over of voice commands (intents)

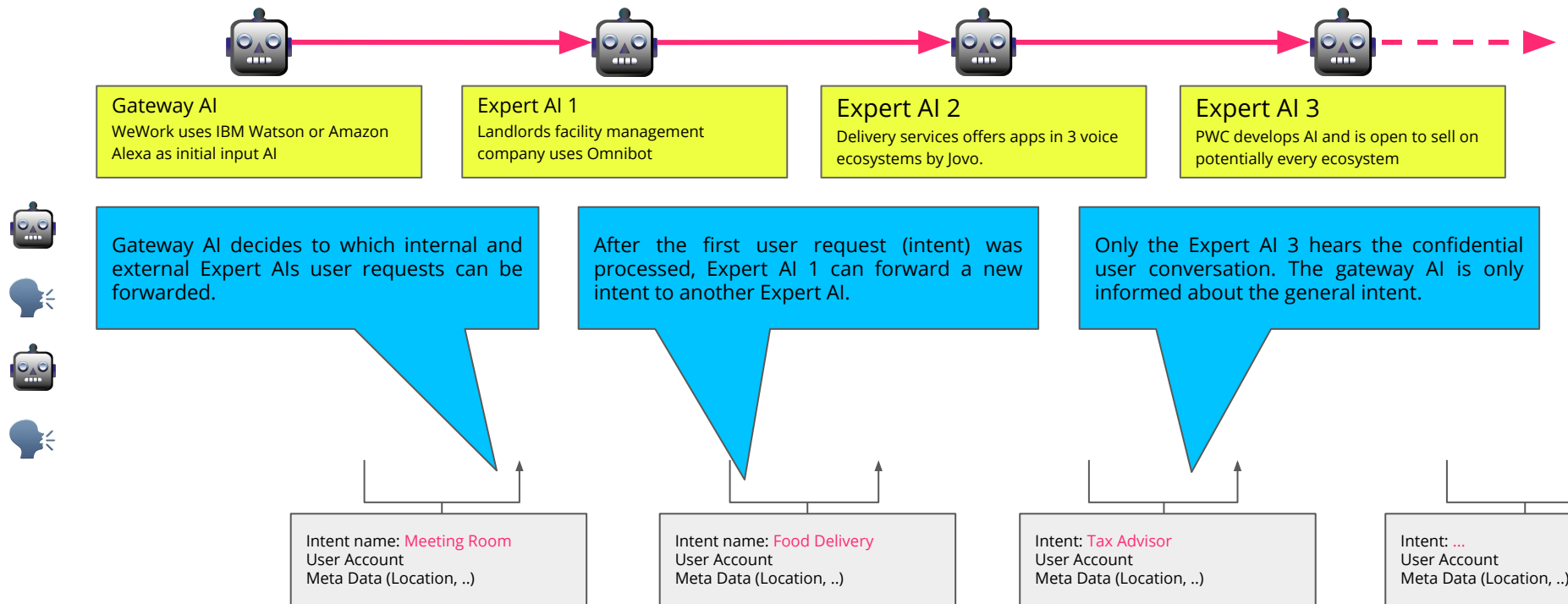
Conversational AI gateways forward the request to a NLP better suited to fulfil the request.

The expert AI can then forward a new request to the next expert AI.



Privacy aspect: Gateway AIs do not need to know the content

“Can I help you anyhow else?” - “I can not do this, but I connect you with the right AI”. The DIN SPEC enables NLPs to forward intents by a standardized format.



DIN SPEC 2343 Demo: Forwarding of intents between consortium partner (Idea!)

1. We agree on a demo dialogue that must integrate use cases/technologies of the standard partners.
2. The partners implement APIs between their technology stacks using the DIN specification.



Hi, WeWork AI. Please help me to do my tax.

AI, thanks for tax advisory. What timezone in Brazil?

AI, now I need to know the chemical reaction of xyz.

..


The PWC AI can help you better than us

It is 17:45 in Sao Paulo. Brazil is 5 hours ahead.

If you mix sulfat and..

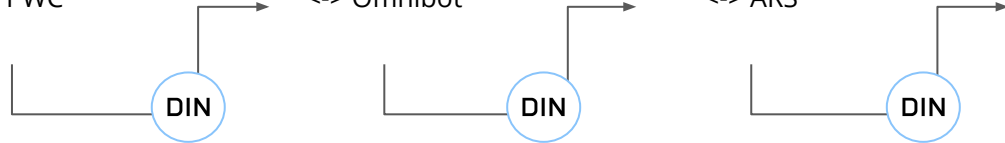
...


Onsei
<-> PWC


PWC
<-> Omnibot


Omnibot
<-> ARS

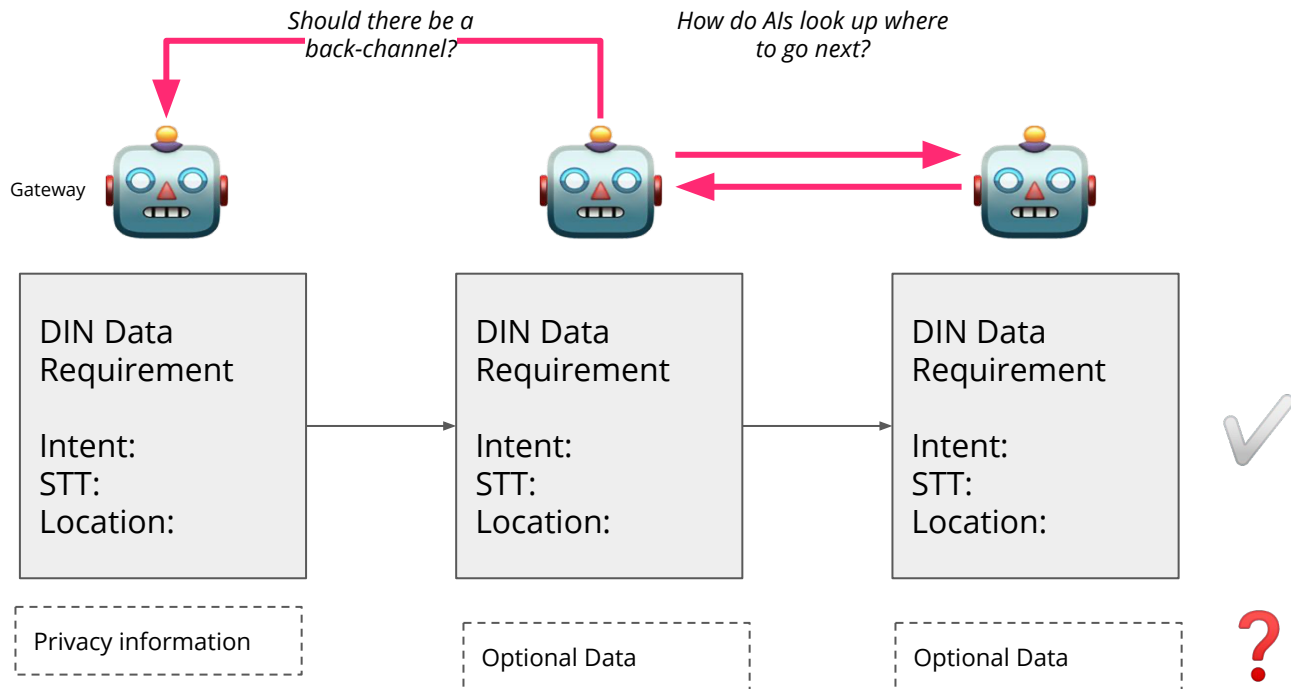

ARS
<-> ...



Additional questions for the finalization of DIN SPEC 2343: Security requirements?

Which other aspects regarding e.g. privacy, data protection, and protocol security should we consider including the DIN specification? Or, should we address as part of e.g. a follow-up initiative at ISO-DIN?

Examples:




Option 1: Demonstrate how DIN SPEC can be accessed via e.g Alexa ecosystem


We program a skill for e.g. Alexa or Google Assistant that stores a requested intents in the format of the DIN standard.

 Welcome at Alexa

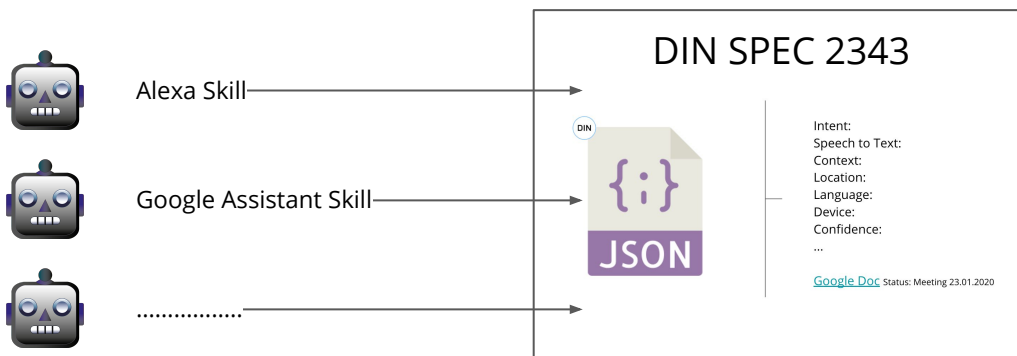
Alexa, open DIN SPEC 2343 app 

 Welcome at DIN SPEC 2343 - which intent do you want to store?

Store the intent "find me an apartment" 

 Done, can I help you anyhow else?

... 



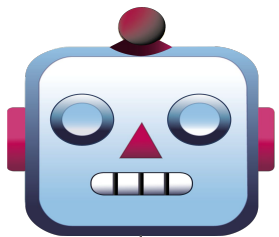
Goal: Demonstration of DIN SPEC 2343 as part (skill) of the GAFA ecosystem.

Implementation: Development of e.g. an Alexa skills that stores in DIN SPEC 2343 format.

Deliverables: E.g. Alexa Skill that stores on external server backend documenting how the intent is received from inside of the Alexa Skill.

Option 2: Demonstrate how NLU can store text/speech input as DIN SPEC 2343

We implement a machine learning model that stores natural language on base of the DIN SPEC 2343 in a standardized output format.



Natural Text Input

"Susan went shopping and ask for help to find strawberries. Afterwards she looked for a charging station for her car"

GPT-2

Intent name: **Strawberry Shopping**
User Account
Meta Data (Location, ..)

Intent name: **Charging Station**
User Account
Meta Data (Location, ..)

Albert

Intent name: **Strawberry Shopping**
User Account
Meta Data (Location, ..)

Goal: Demonstration how NLU are configured to store intents according to DIN SPEC 2343.

Implementation: NLP libraries (e.g. BERT, GPT-2 etc.) are trained to store outputs in the format of the DIN standard.

Deliverables: E.g. landing page with text input, processing with e.g. GPT-2 and Albert, encoding by DIN SPEC 2343, comparison of results

Option 3: Translation demo to other NLP API specifications

We demonstrate how DIN SPEC 2343 compares to the NLP API specifications of other conversational AI technologies.



Goal: Demonstration how different NLU APIs currently store in comparable by varying formats and how DIN SPEC 2343 solves this interoperability problem.

Implementation: Different NLU APIs provider are integrated into a landing page with dialogue input. The API output of the NLU is then compared.

Deliverables: E.g. landing page with text input, processing with e.g. Nuance, Amazon (..), demonstration of intent encoding (e.g. terminal).