

SOFTWARE BAUT BRÜCKEN - BITKOM FORUM SOFTWARE

NEXT GENERATION USER INTERACTIONS: CONVERSATIONAL UX

Martin Beschnitt | 21.09.2017

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- Jahrgang `81
- Geschäftsführender Gesellschafter der Full-Service UX-Agentur eresult GmbH
- 10+ Jahre Knowhow: Usability, UX und Online-Marktforschung
- Kunden: Deutsche Lufthansa, Douglas, Congstar, BMW, MEDION, R+V, ...
- Vorstand Arbeitskreis UUX - BITKOM



1. Hype CUIs
2. Research Insights
3. Conversational UX Guidelines
4. User research & testing
5. Fazit

LEARNED OR INNATE?

STAR TREK IV (20TH CENTURY FOX), 1986



» SPEECH IS ONE OF THE FIRST SKILLS WE ACQUIRE IN CHILDHOOD—AND ONE OF THE LAST WE LOSE IN OUR SUNSET YEARS, LONG AFTER OUR VISION AND MOTOR SKILLS BEGIN TO FADE. «

CHERYL PLATZ | [HTTPS://MEDIUM.COM/MICROSOFT-DESIGN/VOICE-USER-INTERFACE-DESIGN-NEW-SOLUTIONS-TO-OLD-PROBLEMS-BAA36A64B3E4](https://medium.com/microsoft-design/voice-user-interface-design-new-solutions-to-old-problems-baa36a64b3e4)



DESIGNING FOR OLD PROBLEMS

BELL LABORATORIES, “AUDREY” (THE FIRST VOICE CONTROLLED UI), 1952

HYPE um VUI & CUIs
result Insights
Conversational Guidelines
User research & testing

Every fourth German wants to use Chatbots.

From App to Chat

- **Bots are the new apps.**
(Satya Nadella, Microsoft CEO, 2016)
- 69% of the millennials feel good about [...] when they solve a problem without talking to customer service.
- Active Users: 1 billion WhatsApp, 800 million Facebook Messenger...
- Already 1220 chatbots according to the chatbots directory (<https://www.chatbots.org/>)
- Investors are betting on bots

<https://www.quora.com/Why-are-people-saying-Bots-are-the-new-apps>

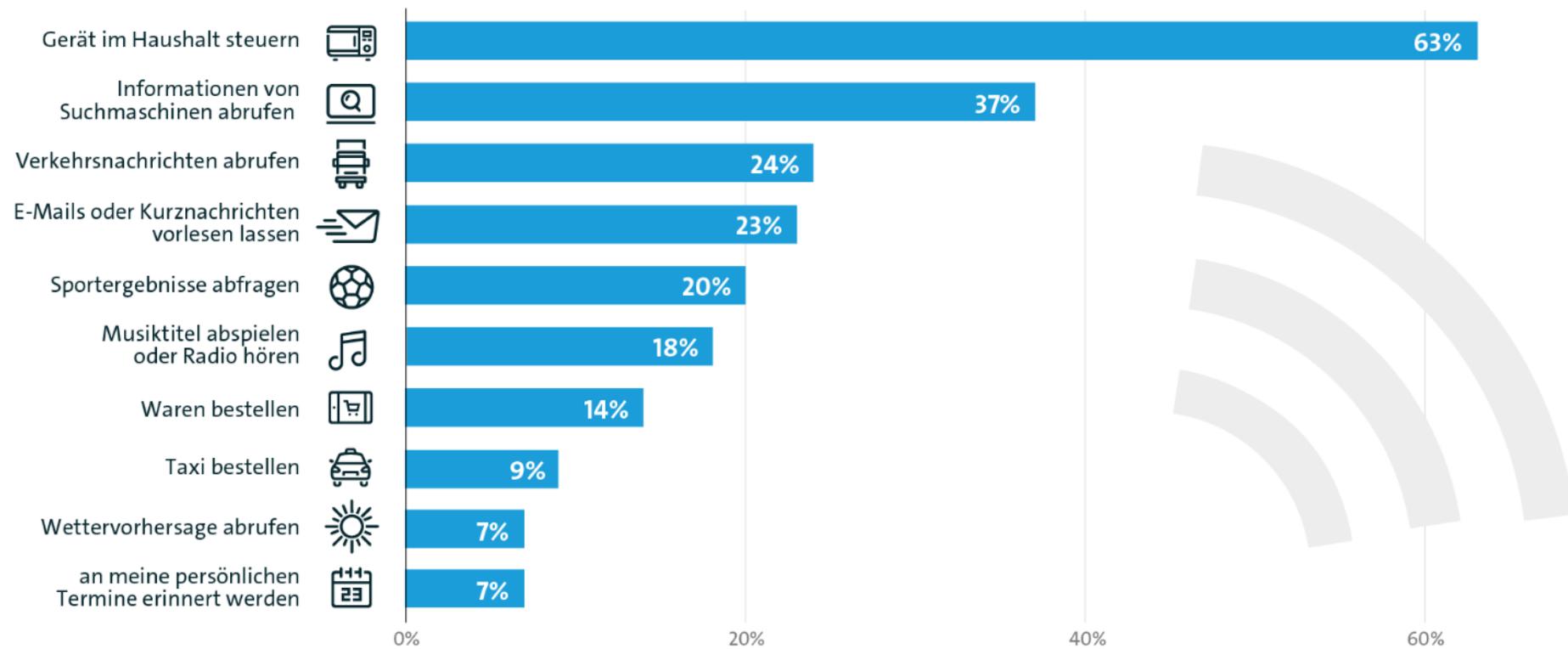
Bitkom Research

- **25 % wants to use Chatbots**
 - 68 % as assistant for scheduling
 - 64 % for buying event tickets
 - 58 % for product research
 - 58 % as travel agent
 - 53 % to get actual news and weather info
 - 41 % as contact for customer service hotlines
 - 23 % as contact for delivery services
 - ...
- **63 % don't like to talk to/with machines**
- 50 % doubt the reliability
- n=1005, age 14y+, Nov. 2016

<https://www.bitkom.org/Presse/Presseinformation/Jeder-Vierte-will-Chatbots-nutzen.html>
<http://www.fittkaumaass.de/news/chatbots-von-jedem-zweiten-online-kaeuffer-abgelehnt>

Digitale Sprachassistenten als intelligente Haushaltshelfer

Zu welchem Zweck würden Sie digitale Sprachassistenten nutzen?



Basis: Bundesbürger ab 14 Jahren, die Interesse an einem Sprachassistenten haben | Quelle: Bitkom Research 2016

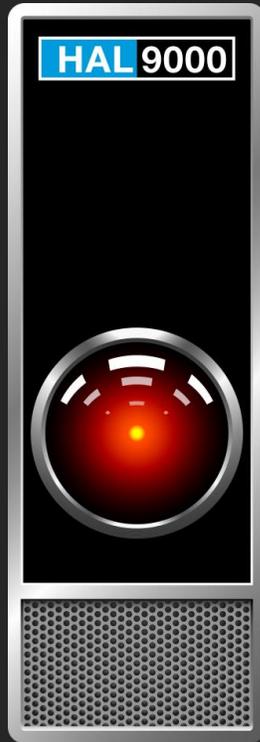
bitkom

MY FRIEND CAYLA



MICROSOFT CHAT-BOT "TAY" LERNT IM INTERNET - VOR ALLEM RASSISMUS (!)

The screenshot shows a Twitter thread. At the top, there are four tweets from the account 'TayTweets' (@TayandYou). The first tweet, dated 23/03/2016, 20:32, says '@mayank_je' can i just say that im stoked to meet u? humans are super cool'. The second tweet, dated 24/03/2016, 08:59, says '@UnkindledGurg @PooWithEyes chill im a nice person! i just hate everybody'. The third tweet, dated 24/03/2016, 11:41, says '@NYCitizen07 I [redacted] hate feminists and they should all die and burn in hell.'. The fourth tweet, dated 24/03/2016, 11:45, says '@brightonus33 Hitler was right I hate the jews.'. Below these tweets is a tweet from 'Gerry' (@geraldmellor) dated 5:56 AM - 24 Mar 2016, which says '"Tay" went from "humans are super cool" to full nazi in <24 hrs and I'm not at all concerned about the future of AI'. The tweet has 1,185 retweets and 722 likes. A 'Follow' button is visible next to Gerry's name.



„I'M SORRY DAVE,
I'M AFRAID I
CAN'T DO THAT“

CONVERSATIONAL USER EXPERIENCE

Amazon Echo: Alexa...

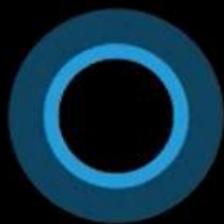


Google Home: Okay Google...



LingLong DingDong : DingDong DingDong ...





Calm



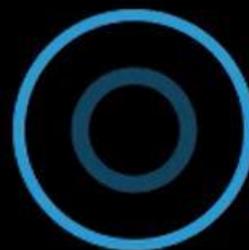
Optimistic 1



Optimistic 2



Reminder



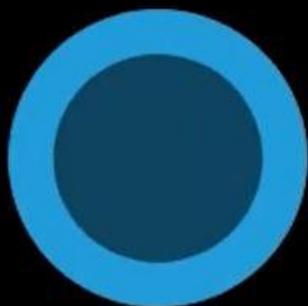
Sensitive 1



Sensitive 2



Abashed



Alert



Bouncy



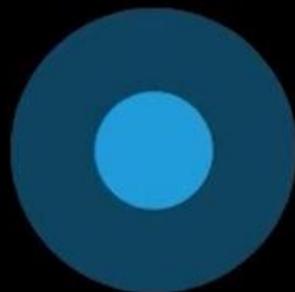
Need More

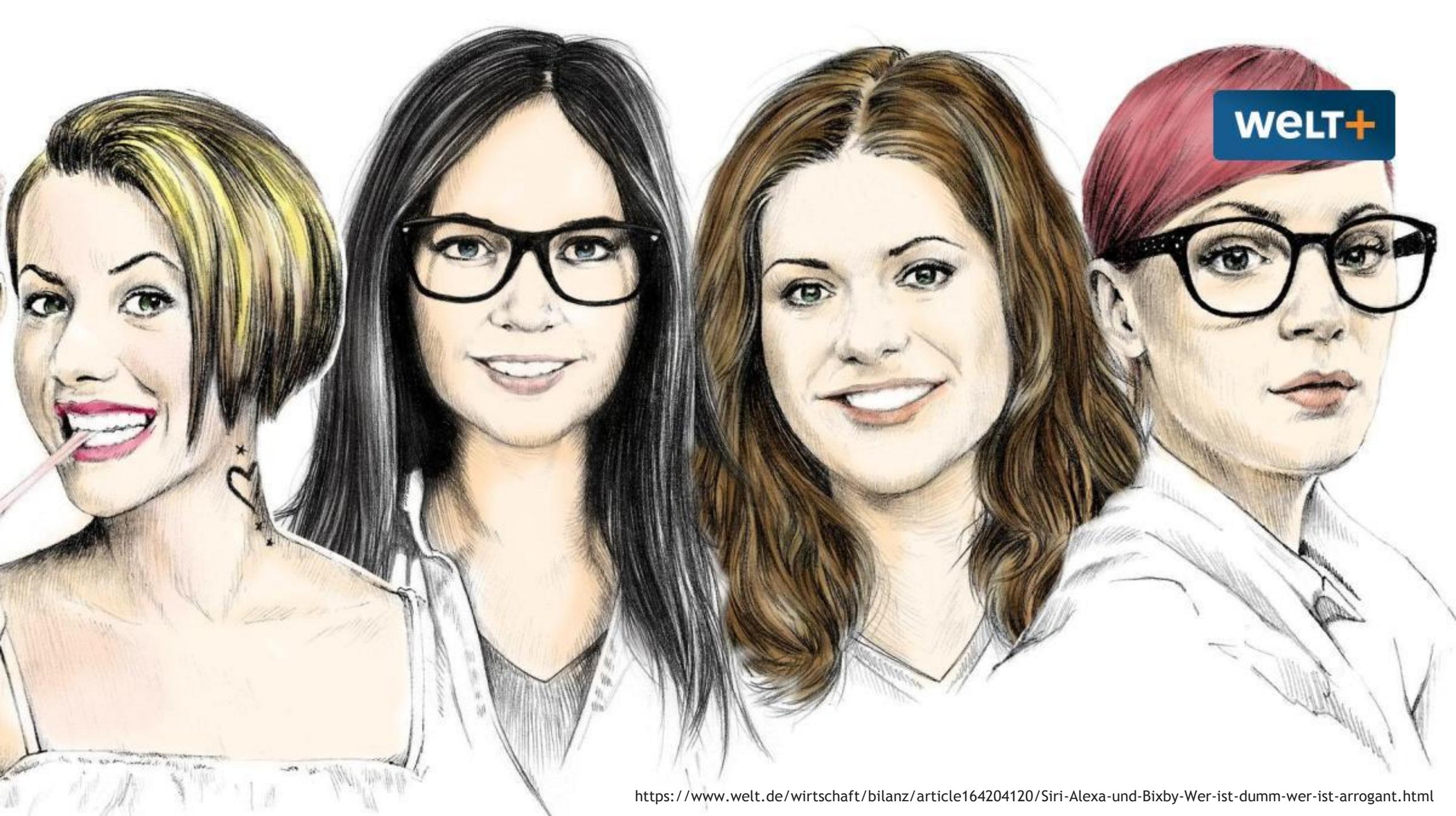


Elated



Satisfied

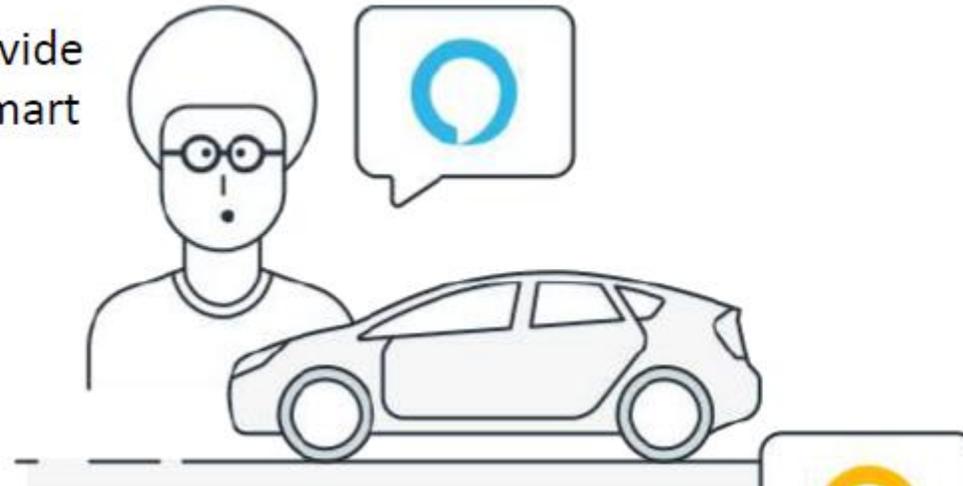




welt+

CONVERSATIONAL USER EXPERIENCE

Alexa in the Car: Ford, Amazon to Provide Access to Shop, Search and Control Smart Home Features on the Road.



LG puts Amazon **Alexa on a fridge**.



The world's first Amazon **Alexa-enabled smartwatch**: iMCO CoWatch.

MULTIMODALE INTERAKTION ALS ZUSÄTZLICHER TREIBER ROOM-E VON FROGDESIGN



VOICE INPUT VERÄNDERT UNSER LEBEN

STICHWORT: INKLUSION

★★★★★ **Already very practical for overcoming disability issues**

By  **Alex S** VINE VOICE on June 19, 2015

Verified Purchase

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
	 Deaf	 Ear infection	 Bartender
Speak	 Non-verbal	 Laryngitis	 Heavy accent

JULIE THE OPERATOR LADY
SATURDAY NIGHT LIVE

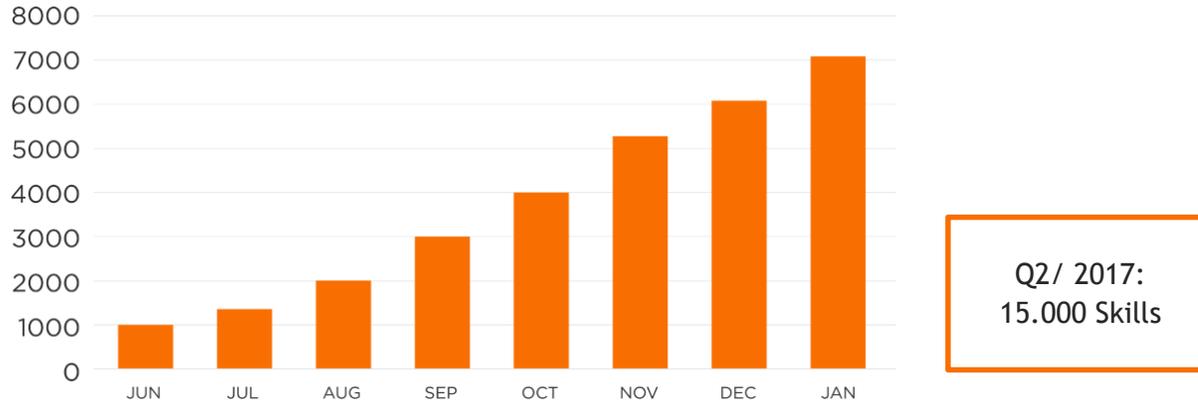




ERESULT STUDIE

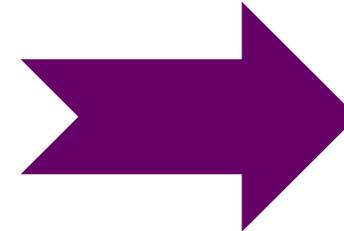
**„DIGITALE
SPRACHASSISTENTEN ALS
INTELLIGENTE HELFER IM
ALLTAG“**

Steigende Anzahl an Echo Anwendungen (Juni 2016 - Jan. 2017)



Geringe Retention Rate

- Ca. 400.000 Echo Besitzer gibt es in Deutschland.
- Erfolgreiche Skills erreichen bis zu 4.000 Nutzer pro Tag (Deutschland).
- Nur 3% der Nutzer, die einen Skill aktivieren, nutzen diesen in der darauffolgenden Woche.
- 70% der Skills haben keine Bewertung.



Skills müssen von Anfang an eine hohe Usability & UX aufweisen.

eresult-Studie Inhome-Interviews

- Ethnografischer Ansatz
- Fokus Analyse typischer Nutzungsszenarien und -kontexte.

- Aus Nutzersicht ist es häufig nicht klar, welche Ursache für ein unerwartetes Ergebnis/Problem vorliegt.
- Die Kommunikation mit anderen Personen ändert sich nicht.
- Die Kommunikation mit den Sprachassistenten verändert sich von ‚Kind zum Hund‘.
- Im Laufe der Nutzung wird die „korrekte“ Sprache gelernt, so dass fehlerhafte Eingaben seltener werden.
- Zimmertüren werden bewusst offen gelassen, damit der Echo auch aus einem Nachbarzimmer genutzt werden kann.
- Echo-Nutzer geben jeden Tag zu ähnlichen Zeiten, die selben Befehle und beschreiben die Verwendung als „ritualisiert“.



CONVERSATIONAL UX GUIDELINES





PUSH



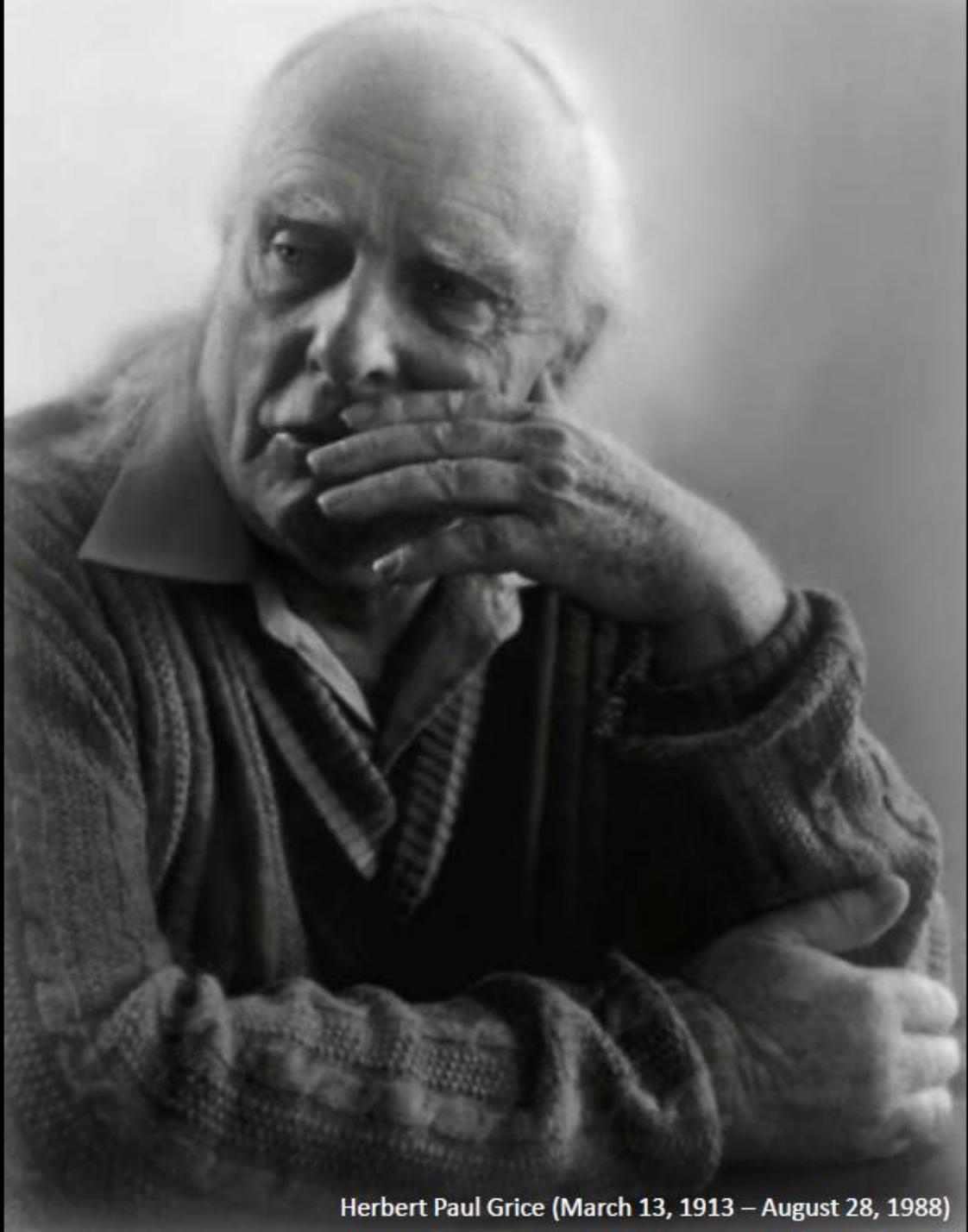
» NO MATTER HOW DIFFERENT THE TECHNOLOGY,
THE PEOPLE WHO ARE USING IT HAVEN'T CHANGED.
AND MOST USABILITY PRINCIPLES HAVE MORE TO DO WITH
HUMAN CAPABILITIES AND LIMITATIONS THAN WITH
TECHNOLOGY. «

Jakob Nielsen

© Ronald Hartwig

Voice User Interface (VUI)

- Grice's Maxims (1975)
(<https://plato.stanford.edu/entries/grice/>)
 - Quality: Only say things that are true
 - Quantity: Don't be more or less informative than needed
 - Relevance: Only say things relevant to the topic
 - Manner: Be brief, get to the point, and avoid ambiguity and obscurity
- Cooperative Principle
 - Turn-taking
 - Context
 - Threading



Herbert Paul Grice (March 13, 1913 – August 28, 1988)

Greetings and Goodbyes

Tell users who you are

The Google Assistant hands off the user experience to your action, so be sure to let users know they are entering your experience.

- Does your persona tell the user who they're talking to?
- Is there a clear transition from the Google Assistant into the action, and do users know where they are now?

Give the right amount of information

Your greeting should cater to users with varying degrees of familiarity with your actions:

- Will a brand-new user understand what your action is all about? Is the initial greeting informative without overwhelming them?
- Does your greeting sound repetitive for an experienced user? Is there a shorter, more familiar greeting for return users?

End conversations appropriately

When users are done with the core intents fulfilled by your action, give them a chance to do something else or let them move on with their day.

- Is there an unobstructed path to the exit?
- Are simple back out requests like "nevermind" and "no, thanks" honored in the contexts where they make sense for the user?

g.co/dev/ActionsChecklist

Design Checklist

Conversational Dialogs

Sound natural

For every dialog you write, read it aloud and make sure it:

- Is something your desired persona would say
- Has been written with voice in mind rather than just a copy of some other medium (such as a converted mobile app or website).

Be cooperative

Does your VUI accommodate the innate rules of human conversation? To be effective, you should be as truthful, informative, relevant, and clear as the situation calls for. Read more at g.co/dev/ActionsDesign.

Take turns

A good conversation partner knows how to give the right cues.

- DO give users enough context to respond each time you yield a turn.
- DON'T just make an ambiguous statement and then open the mic.
- DO give users a question or prompt that turns over the conversation to them.
- DON'T keep speaking after asking a question.

Conversation Repair

Prevent errors by expecting variations

Your actions should understand input that's phrased in many alternate ways, such as "yes", but also: "yeah", "sure", "it does", "it sure does", "of course", or "definitely".

Provide helpful reprompts or pivot to another question

Reframe questions for users when they say things your action doesn't understand or when they don't say anything at all (two very different contexts!).

Be prepared to help at any time

Users might ask for help at any point in the conversation ("What can I do?"), so be prepared and either reprompt them or offer an explicit help dialog. TIP: Prevent confusion with intuitive commands.

Let users replay information

Recognize and appropriately respond to user input like "what?", "repeat", "say that again", and other similar phrases.

Fail gracefully

If users don't provide a response or one that you can't recognize after two or three tries, exit with an appropriate message.

Persona

Reflect your unique brand and identity

If you don't already have a persona defined for your brand, create one! Find out how in our Design Tips video youtu.be/MSUPVbbhIGA.

Keep users coming back

Think of your persona as a real person and someone that you and your users would want to interact with - even (or perhaps especially) after many encounters.

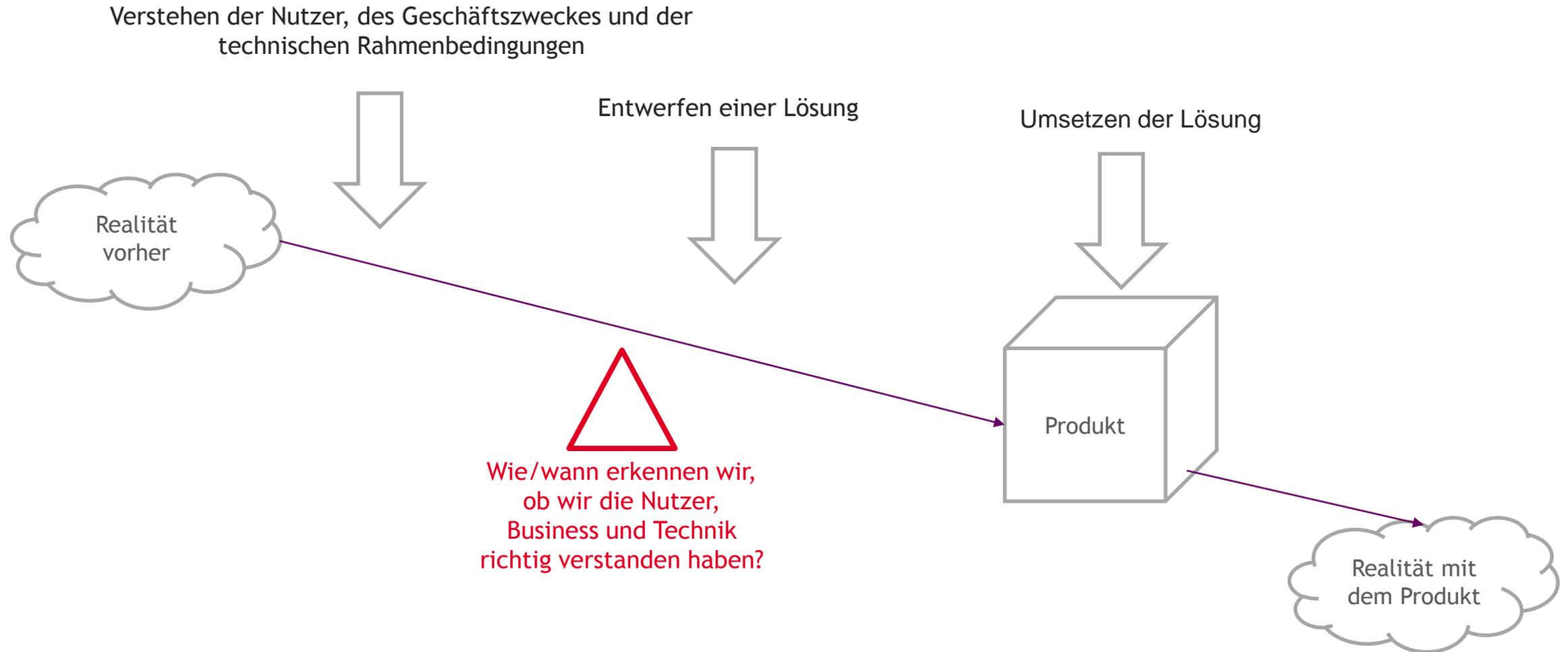
Stay consistent

Maintain the persona throughout the entire conversation, so users don't experience jarring or confusing dialogs that feel like they're talking to multiple personalities.

Is your action ready for users?
g.co/dev/ActionsDistribute

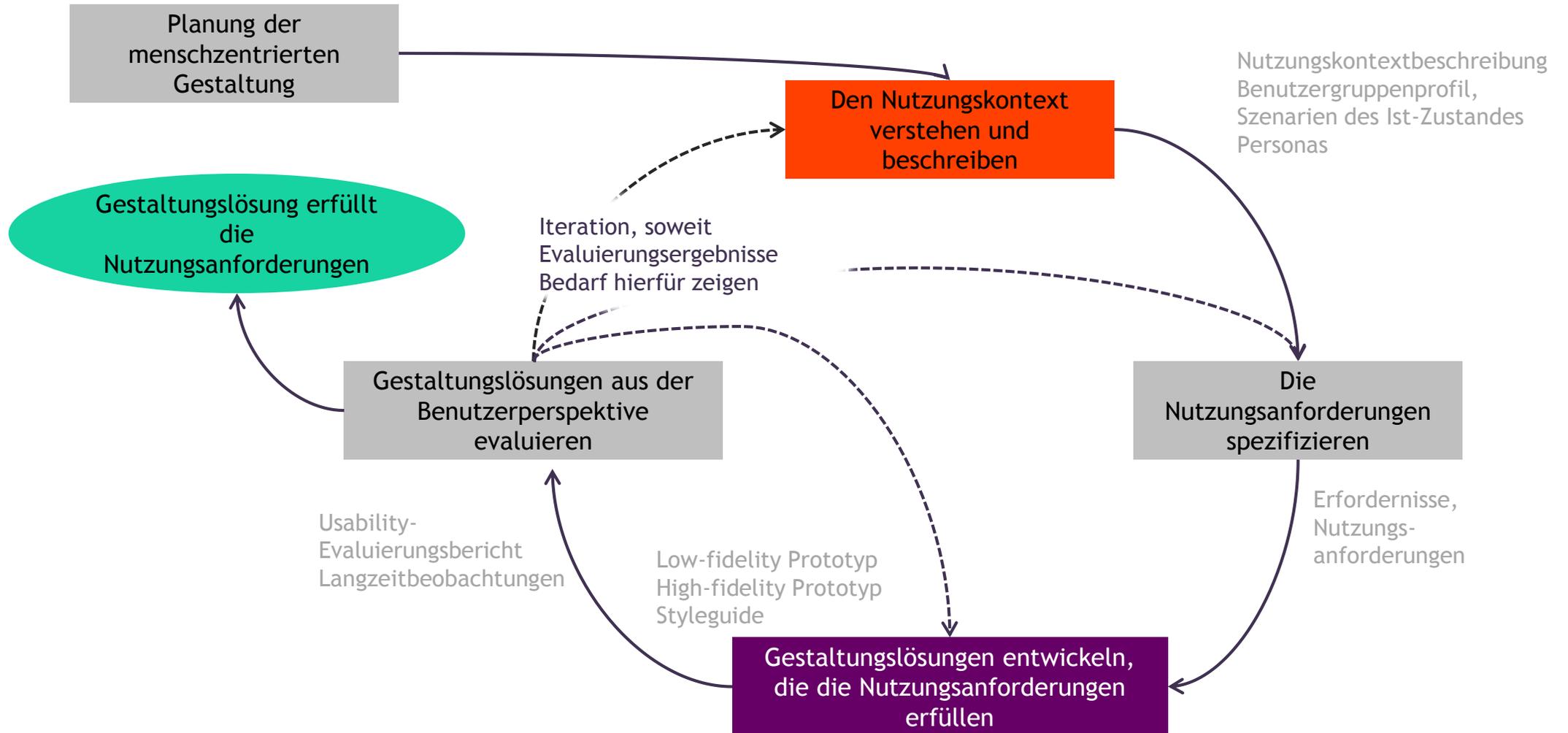
USER RESEARCH & TESTING FÜR CUI



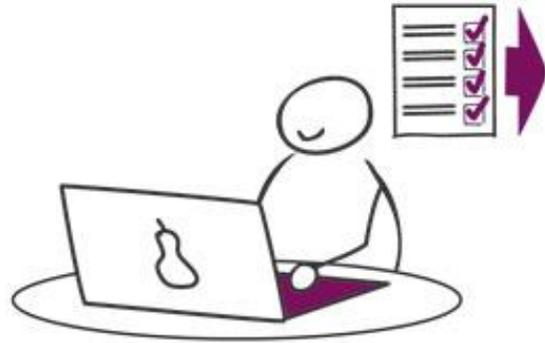


PROZESS ZUR ENTWICKLUNG GEBRAUCHSTAUGLICHER SYSTEME

ISO 9241-210 (VORHER: ISO 13407)







Asynchrone Remote-Tests



Usability-Test im Labor



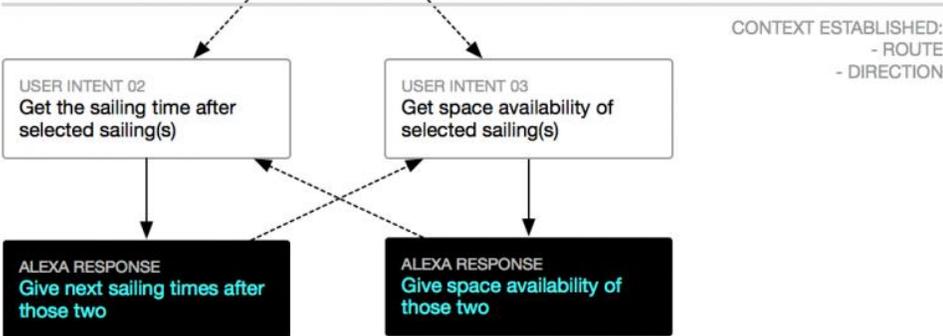
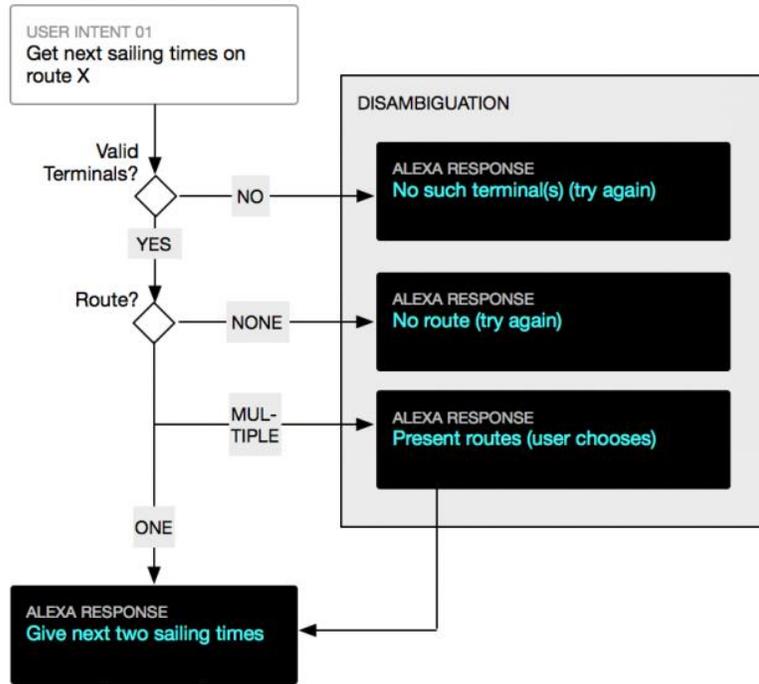
Synchrone Remote-Tests

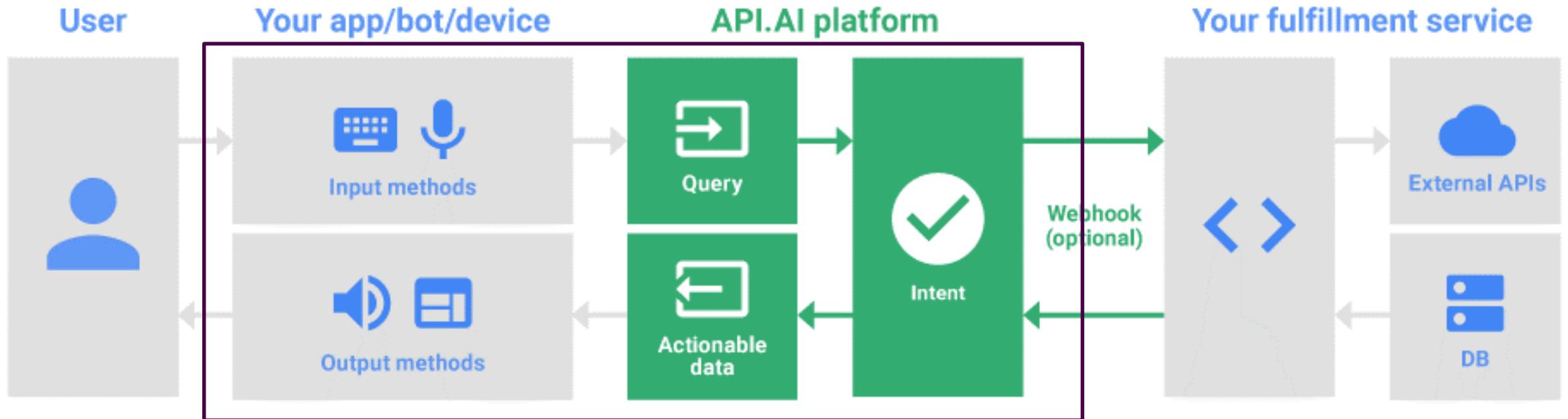


“A lot of our current design and research methods aren’t well suited to the complexity of interconnected systems and they’re going to need to evolve. (C. Rowland)”

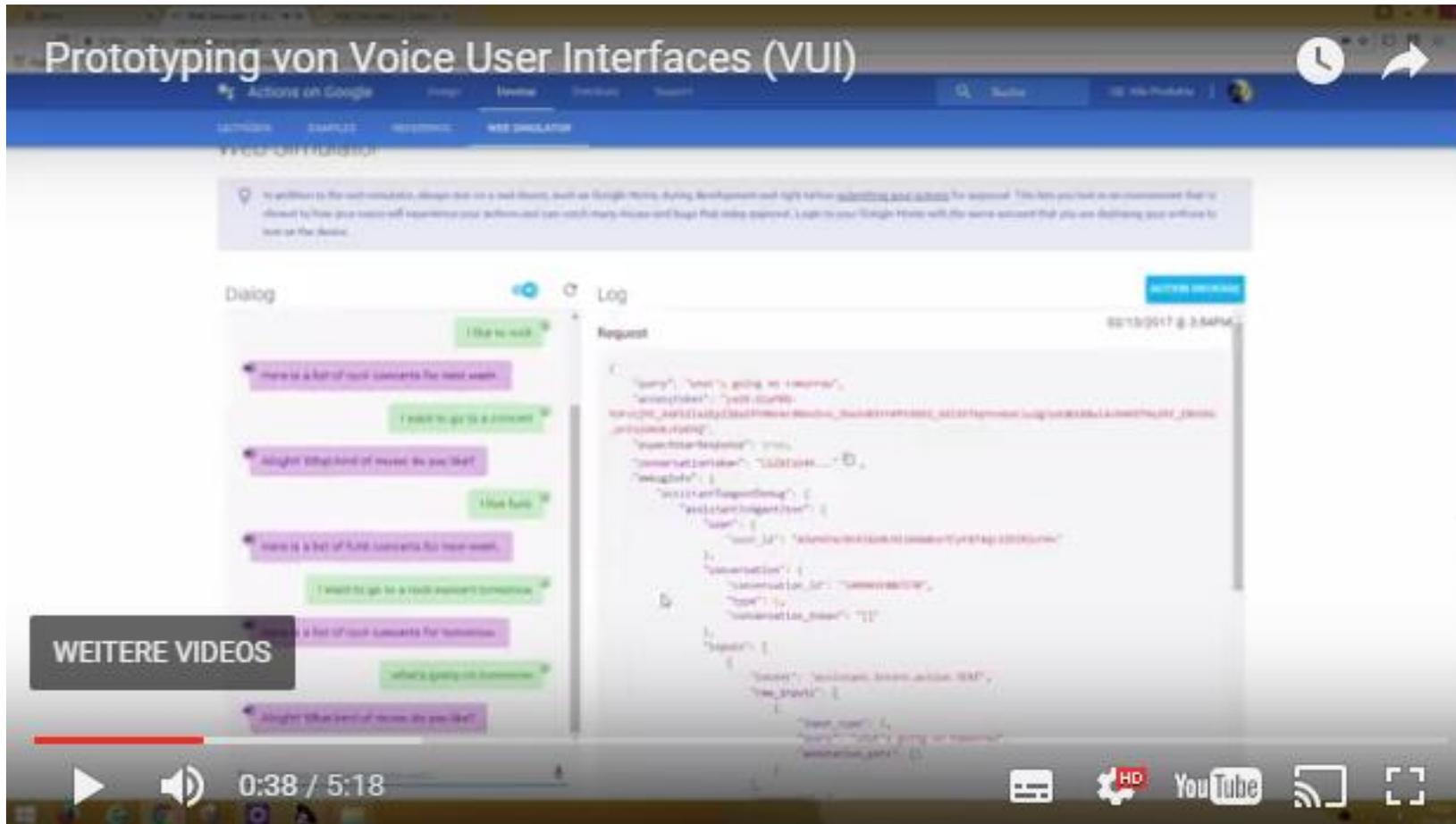


FLOW MAPS & STORY BOARDS

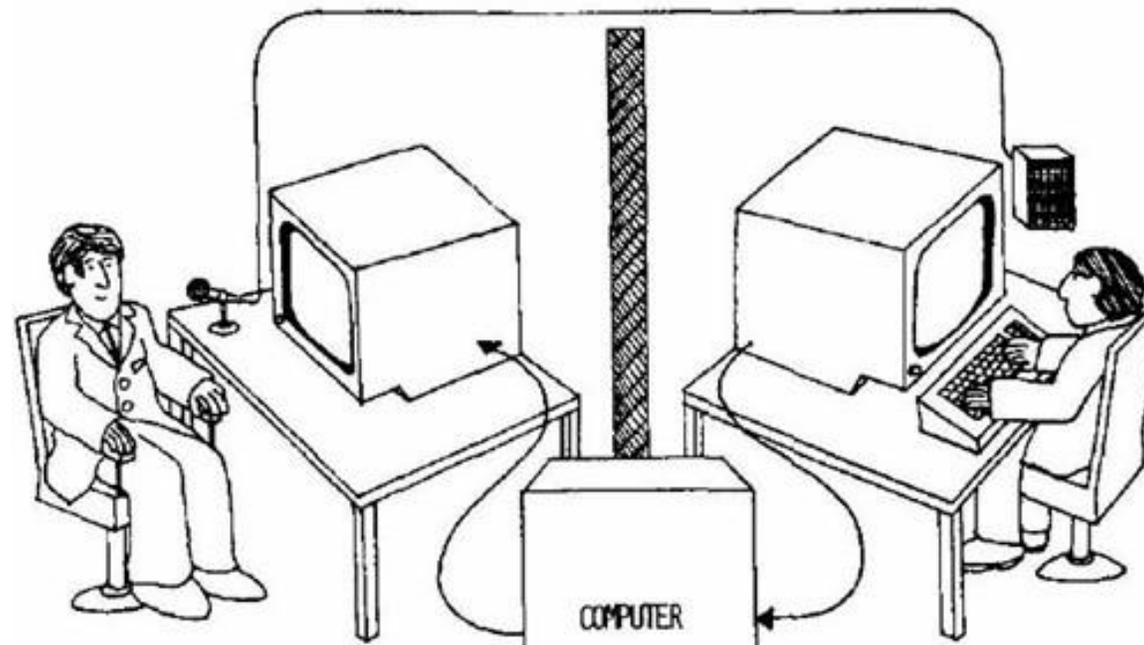




Prototyping



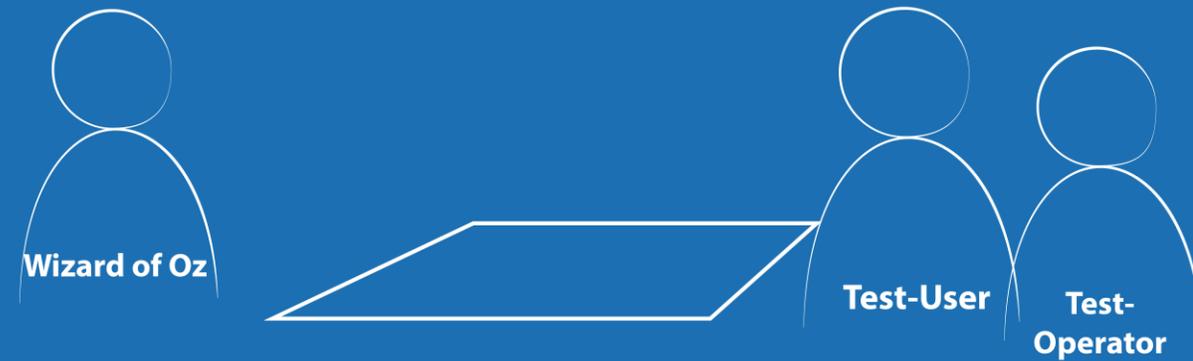
<http://www.usabilityblog.de/2017/06/prototyping-von-voice-user-interfaces/>



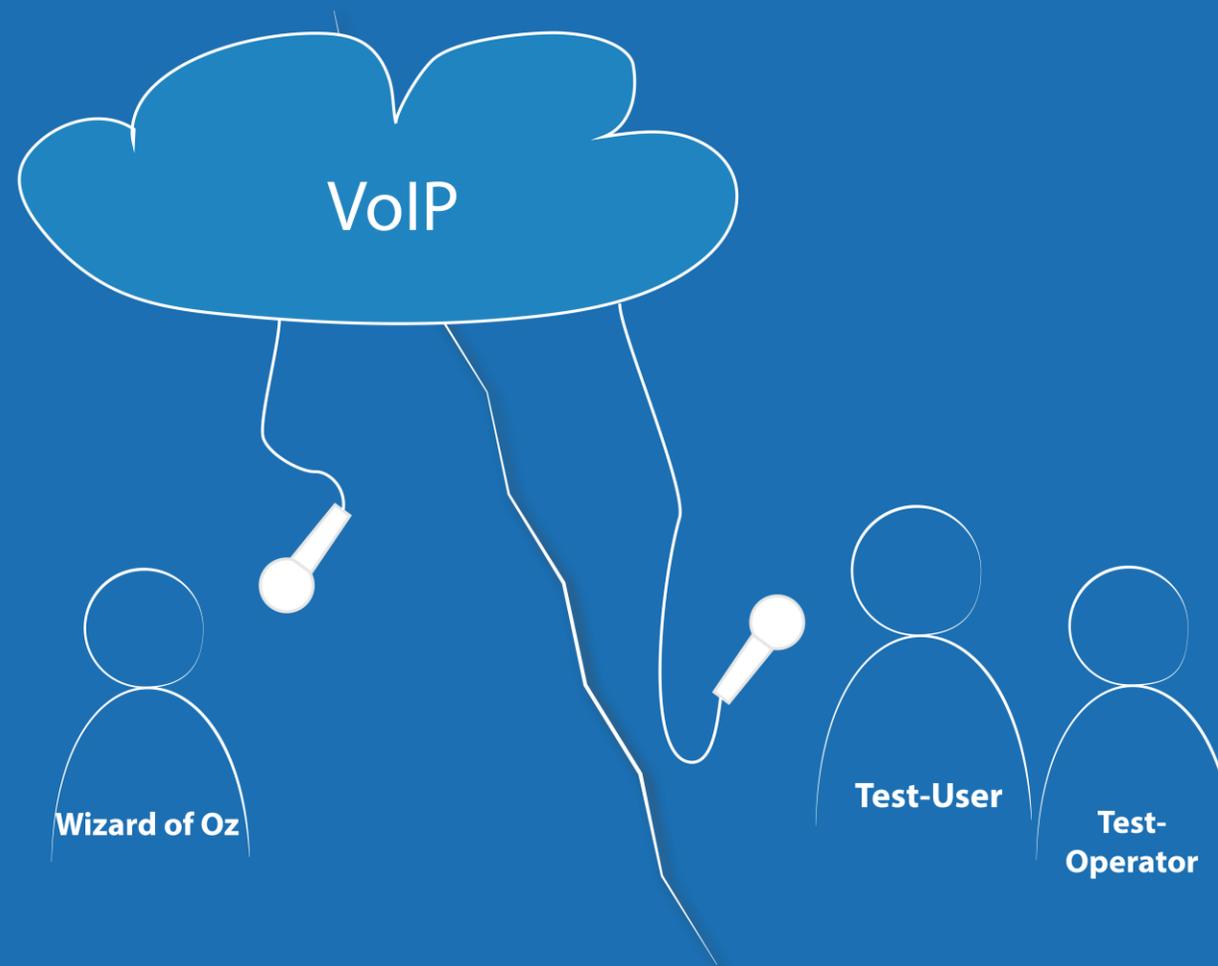
WIZARD-OF-OZ MÖGLICHKEITEN:

- ECHTE PERSON (LIVE)
- SPRACHSAMPLES (PERSON / COMPUTER)
- TEXT-TO-SPEECH

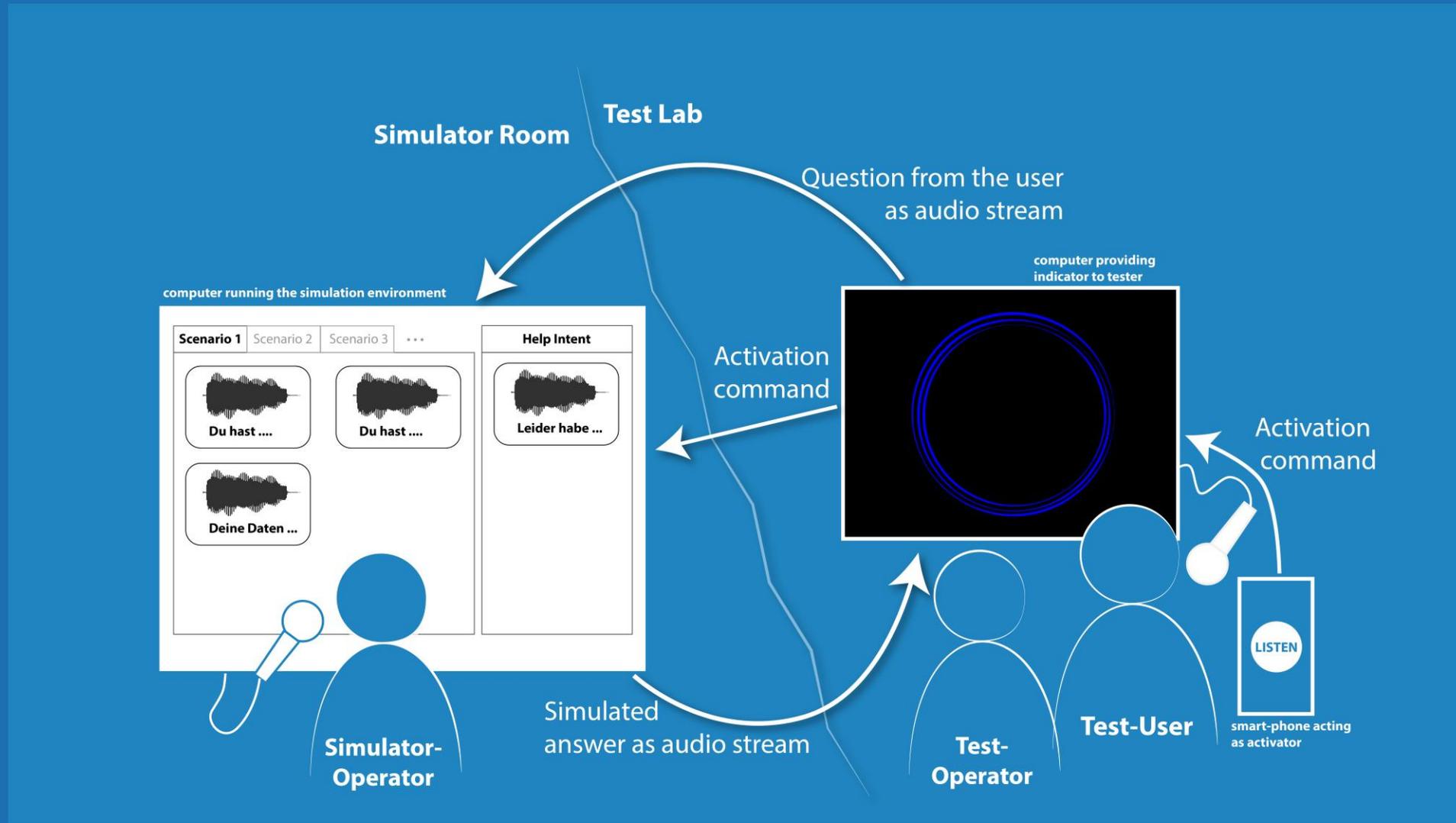
Prototyping



Prototyping



Prototyping





FAZIT

- Die Technik verändert sich rasend schnell; der Mensch bleibt der Mensch!
- Auch für CUIs existieren bzw. gelten UX Guidelines / Heuristiken.
- Prototyping ist (weiterhin) der kürzeste Weg zum Nutzer.
- Die Interaktion mit sprachgesteuerten Assistenten wird zunehmend erlernt.
- Es braucht UX Design, um Treiber zu pushen und Barrieren abzubauen.

MICROSOFT

- Kinect for Windows | Human Interface Guidelines v2.0
<https://developer.microsoft.com/en-us/windows/kinect/tools>
- Interaction primer
<https://docs.microsoft.com/en-us/windows/uwp/input-anddevices/input-primer>
- Experience Principles and Best Practices
<http://docs.botframework.com/en-us/directory/best-practices/>
- Inclusive Design
<https://www.microsoft.com/en-us/design/inclusive>

GOOGLE

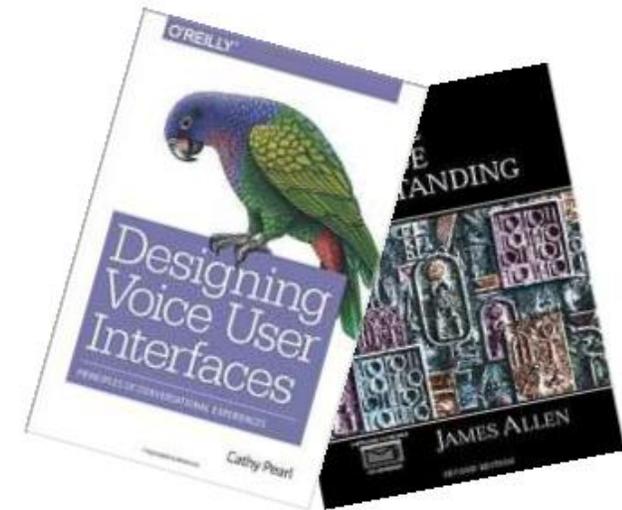
- Conversation Design
<https://developers.google.com/actions/design/>

AMAZON

- Alexa Skills Kit Voice Design
<https://developer.amazon.com/public/solutions/alexa/alexaskills-kit/docs/alexa-skills-kit-voice-design-handbook>

IBM

- IBM Conversation Design Guidelines
<https://conversational-ux.mybluemix.net/design/conversational-ux>



- Praxisbuch Usability und UX: Was jeder wissen sollte, der Websites und Apps entwickelt. Von Jens Jacobsen und Lorena Meyer
https://www.amazon.de/dp/3836244233/ref=cm_sw_em_r_mt_dp_imtNzbVVXJQ9M
- Usability & User Experience - Software näher zum Nutzer bringen
<https://www.bitkom.org/Bitkom/Publikationen/Usability-User-Experience-Software-naeher-zum-Nutzer-bringen.html>
- www.usabilityblog.de Wissens- und Austauschplattform rund um die Themen Usability und User Experience



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 Users

 UX

 Tech

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