

# Voice Assistants **in the Car**

**Volker Springer**

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- Fully voice controlled
- Natural Language Understanding Technologies
- A somewhat autonomous driving vehicle



Attendant and medical dictation systems

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Very limited vocabulary



## Personalization of assistants

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Mostly speaker dependent – “voice tags”

# Command and Control – Scripted Commands

## Handcrafted “dialogs” – resembling haptic UI





- ▶ Voice systems became humanized
- ▶ Vocabulary not limited to control of device
- ▶ Natural Language Understanding (NLU)



- ▶ C&C now in use for many car functions
- ▶ Many direct speech actions (intents)
- ▶ But still deeply synced with rest of UI
- ▶ Embedded systems NLU, cloud supporting

- ▶ Cloud based software platforms
- ▶ B2B-service “eco system” - music, weather, anything ...
- ▶ Centralized aggregation of speech data





# Top Five Technologies for AI



Natural  
Language  
Generation



Speech  
Recognition



Virtual Assistants



Biometrics



Text Analytics  
and NLP

Source: Forbes



Audio processing improved  
Microphone arrays  
Source separation, Noise suppression



Text to Speech also Evolved Dramatically  
Natural and Intelligible:  
Emotions, Hesitations...

# Future of Assistants...





Future of the car? Fleet or owned?  
Increased connectivity (IoT device)  
Offline assistance required?



Bring Your Own Device



Embedded into car SW



Existing HMIs – how to test (remote) AI

Localization: >30 languages with assistants

Non-native dialects & voice-disabled people



# EB's UX Product Portfolio



**EB GUIDE  
Studio &  
Target  
Framework**



**EB GUIDE Speech  
Extension & Target  
Framework**



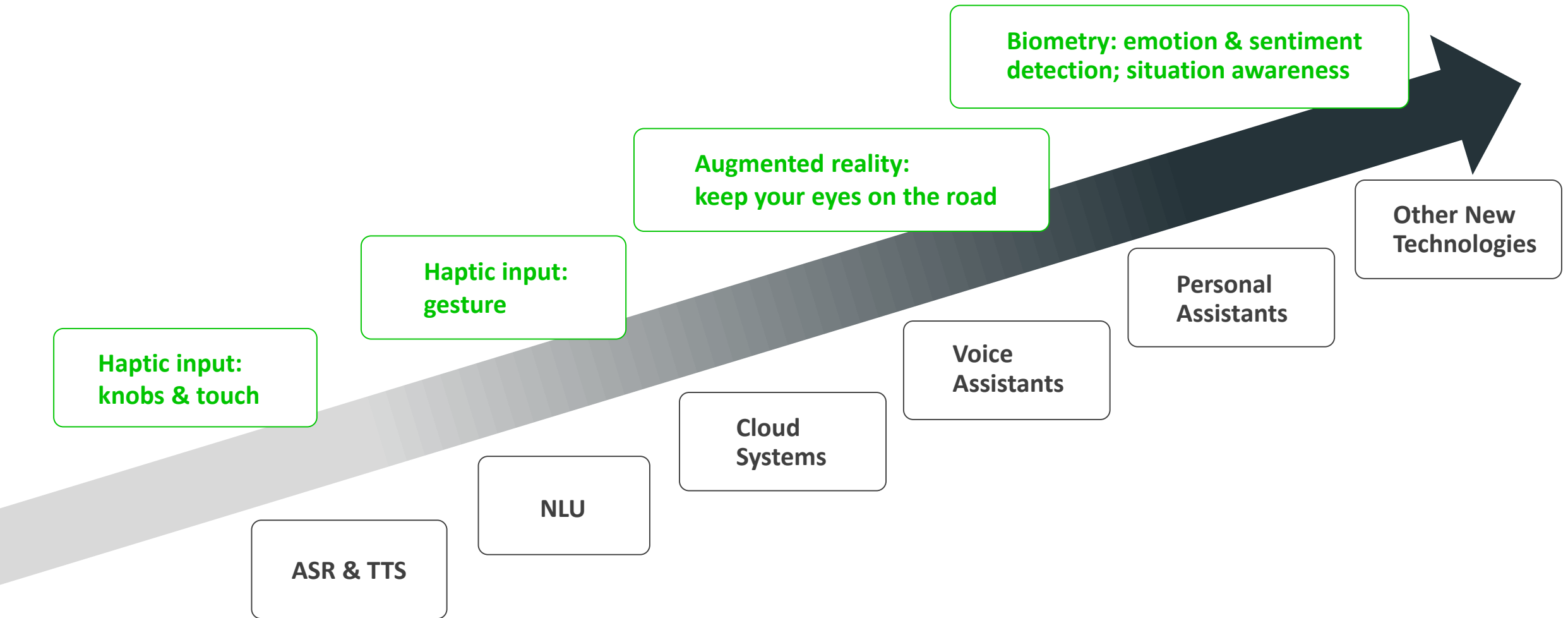
**EB arware**



**EB Cockpit  
Software  
Platform**



# Leveraging Technology to Drive the Future



# Voice Assistants **in the Car**

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