



Innovative Text-to-speech features as driving factors in application effectiveness



Loquendo
VOCAL TECHNOLOGY AND SERVICES

- **What kind of mobile devices use speech technologies today?**
- **What features of TTS/ASR are important on mobile devices?**
- **Why does speech technology choice and its features make a difference?**
- **How can innovative TTS/ASR features and integration methods enable new applications?**



- **PDA's and Mobile Phones**
- **Talking Dictionaries and Translators**
- **Navigation Systems**
- **Hands-free systems**
- **Assistive: TTS Readers, AC Devices**
- **Games, Toys, Robots**
- **eBook Readers**



Many applications already out there....

- Voice dialers
- Screen Readers
- Virtual Assistants
- SMS dictation

Talking Dictionaries and Translators





Many Speech enabled PNDs already out there....

- >90% have TTS
- Many with TTS and ASR
- Next step...connected devices





How iLANE Works in Your Vehicle



All communication between iLANE and your handheld occurs automatically, seamlessly and wirelessly within the vehicle.

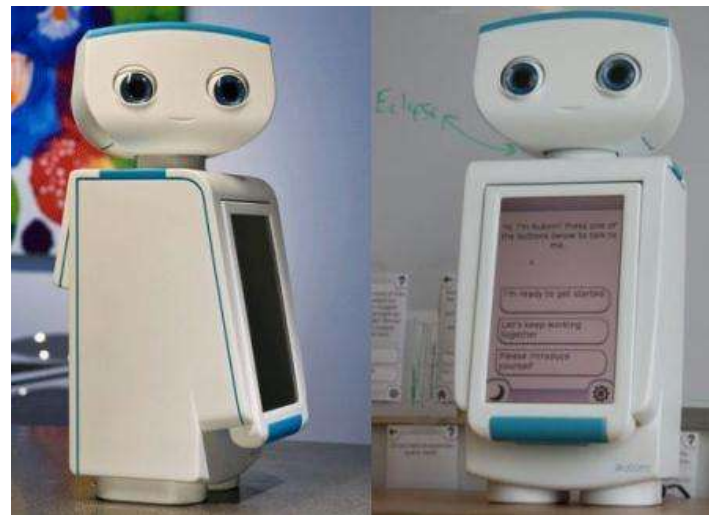


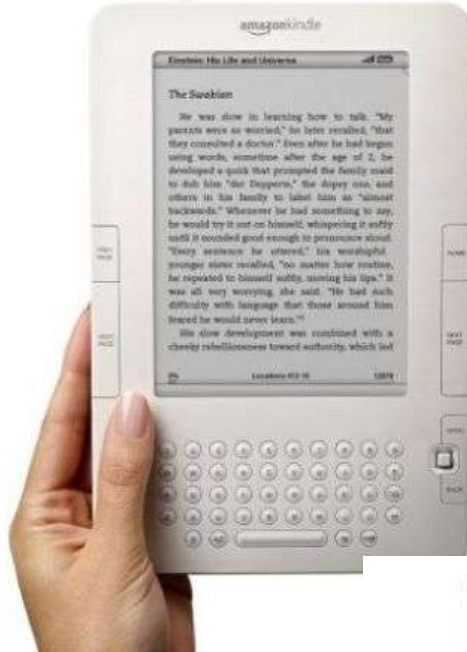
- Text scanners / readers
- Screen Readers
- Alternative Communication Devices





Many toys and robots can not only speak to you in different languages, but they can look at you when you speak (as if they are listening), or even understand your commands!





After the Kindle introduced its new version with TTS, this is now becoming a mandatory feature for the market!

Next trend will be ASR!



- **Support Multiple Languages**



- **Robust to Noisy Environments**

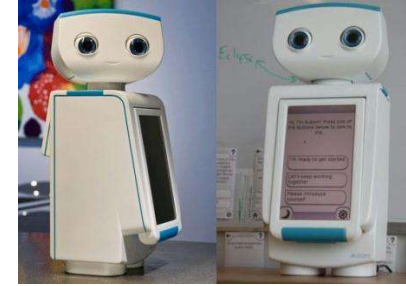


- **Footprint Size Flexibility and Low Power Consumption**



Important Features for Speech in Mobile Devices

- **Lifelike and Expressive**



- **Competitive Prices**



- **Intelligible and Natural Sounding**



- **Embedded vs. Server vs. Hybrid models**
 - Which one should you choose?
 - What are the real pros and cons?
- **TTS only or a mix of pre-recorded and TTS?**
 - What is more efficient?
 - How can you overcome quality discontinuities?
- **Expressiveness and multilinguality**
 - What makes a TTS really expressive?
 - What are the pro/cons of mixed language TTS systems? How and when should they be used?

What is the most appropriate model for my application?

Model	Advantages	Disadvantages
Entirely Embedded	Cost effective and simpler business model for OEMs Simple out of the box usage for consumers High Reliability and fast response time	Impacts devices' resources Not easily/seamlessly upgradable or at higher costs No NLP or complex voice searches related to large amounts of data
Entirely Server	Quality not dependent on device capabilities More complex search tasks No constraints on low-end phones Real-time information Access to cloud data	Need for Connectivity Mainly Coverage and costs <ul style="list-style-type: none">•Rural areas•Emerging markets•Cross country usage (roaming)•Data Plans (flat or non) More complex business model
Hybrid	Simple tasks can be done on-board Reduced bandwidth usage Flexibility Inherits advantages of both methods	Certain services would be directly linked with coverage More complex for service developers More complex business model

In the past mixing pre-recorded with TTS meant:

- quality discontinuity (or even change of voice)
- complex application maintenance and update



More and more TTS vendors began creating sophisticated tools to integrate and mix recordings with TTS and to sculpt prompts



Loquendo was the first, with its Automotive Solution TTS, to mix pre-recorded prompts with TTS as “vocal add-ons” to the standard TTS databases, seamlessly and with the same speakers



The TTS with its authoring tools, equalizer and audio mixer becomes the audio manager of the entire application

Paralinguistic events and expressive cues are incredibly important besides intelligibility to make you mobile application/device more appealing.



Imagine this....

Or



This!

Giving the possibility to one TTS voice to be able to speak any other language rather than switching voice to the selected language is crucial in certain applications!



Imagine this....

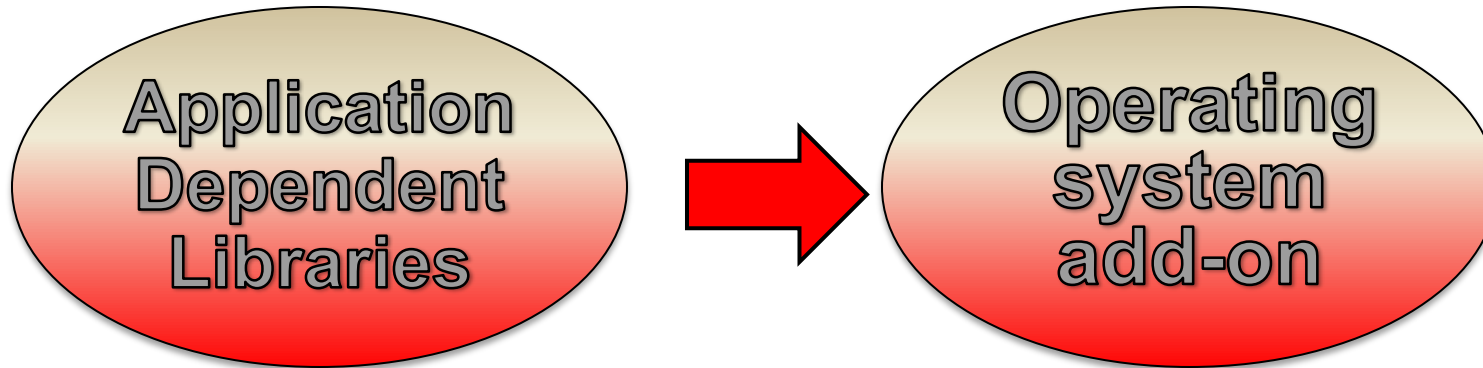
Or



This!

How can innovative TTS/ASR features and integration methods enable new applications?

- TTS integration on Mobile phones, new paradigms emerging:



The SAPI-like integration concept will drive the development of new apps making use of the available TTS.

- Empowering embedded ASR engines with SLM and compliance to standards such as SCXML will enable natural language applications directly on the device.
- The newly launched and emerging hybrid approach for mobile apps on your smartphone or in your car will enable new possibilities of content search and real-time information.

Thank you for your kind attention.

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Luisa Cordano

Sales Manager Embedded Technologies

luisa.cordano@loquendo.com



Loquendo S.p.A.
745 Fifth Ave, 27th Floor
New York, NY 10151
USA
Tel. +1 212.310.9075
Fax. +1 212.310.9001
www.loquendo.com

Loquendo S.p.A.
Via Arrigo Olivetti, 6
10148 TORINO
Italy
Tel. +39 011 291 3111
Fax +39 011 291 3199
www.loquendo.com