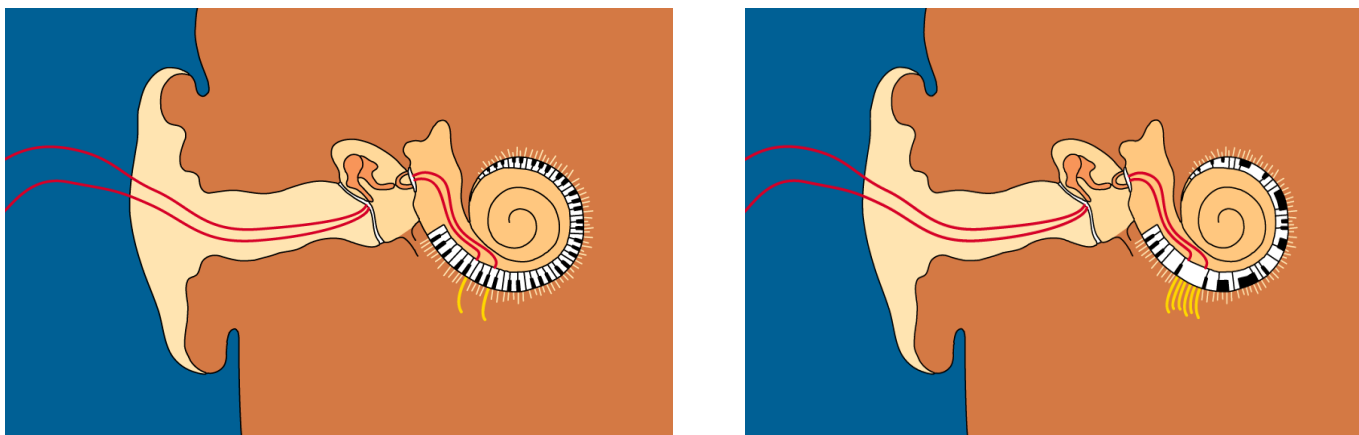


Hearing Instrument Technology

Jan Metzdorff
President, Sonova Wholesale USA
April 2017

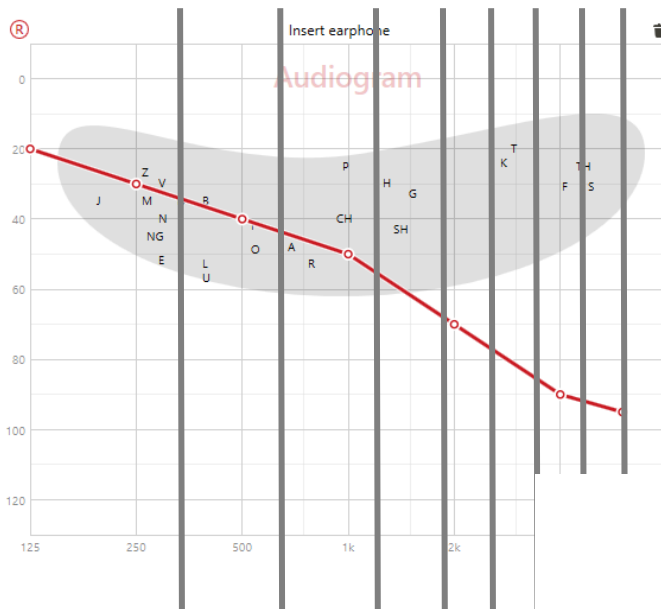


Hearing Loss & Hearing Instruments

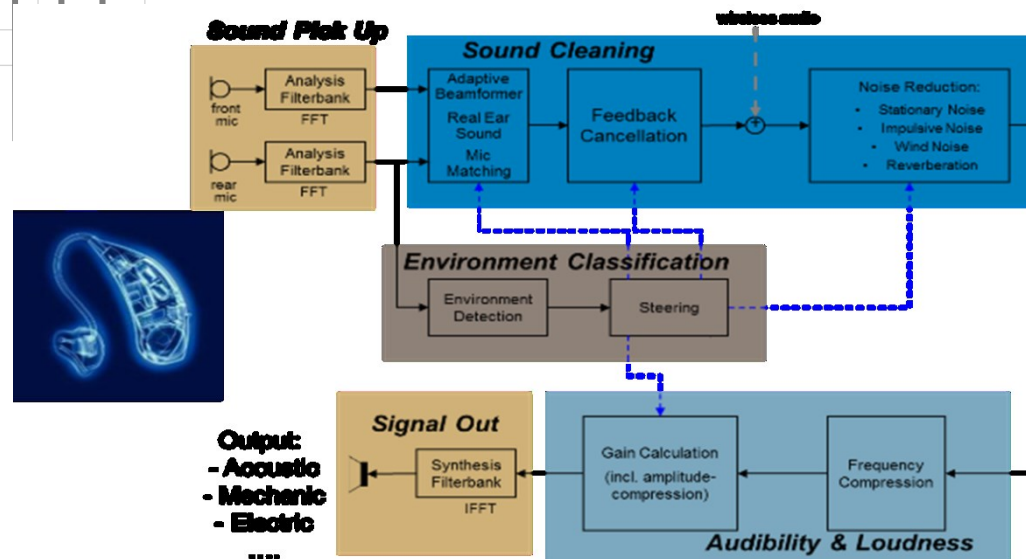


- Hearing Loss is individual and often complex
- Unlike reading glasses, hearing aids **do not** restore hearing to normal
- The patient satisfaction is widely dependent on the sophistication of the hearing instrument and the programming to the individual hearing loss

Hearing Loss & Hearing Instruments

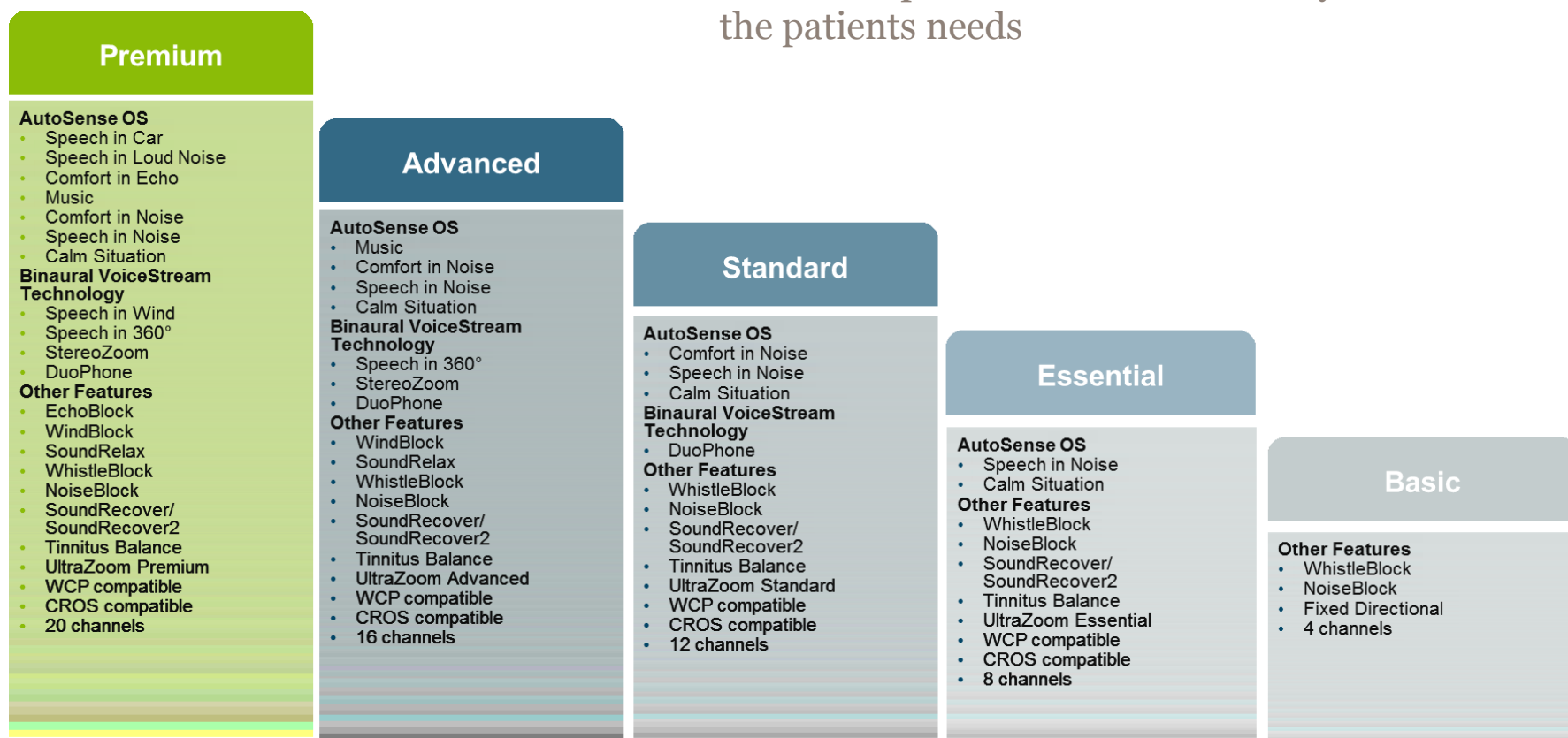


- Hearing Instruments are highly sophisticated micro computers that are individually programmed
- Dividing the frequency spectrum into channels allows for a higher-resolution optimization of the hearing instrument
- Different noise environments require different program settings for best listening experience



Hearing Loss & Hearing Instruments

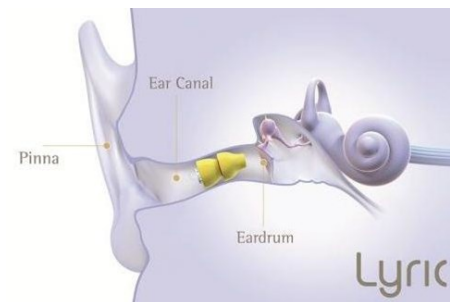
- Different technology levels provide varying levels of sophistication and flexibility to meet the patients needs



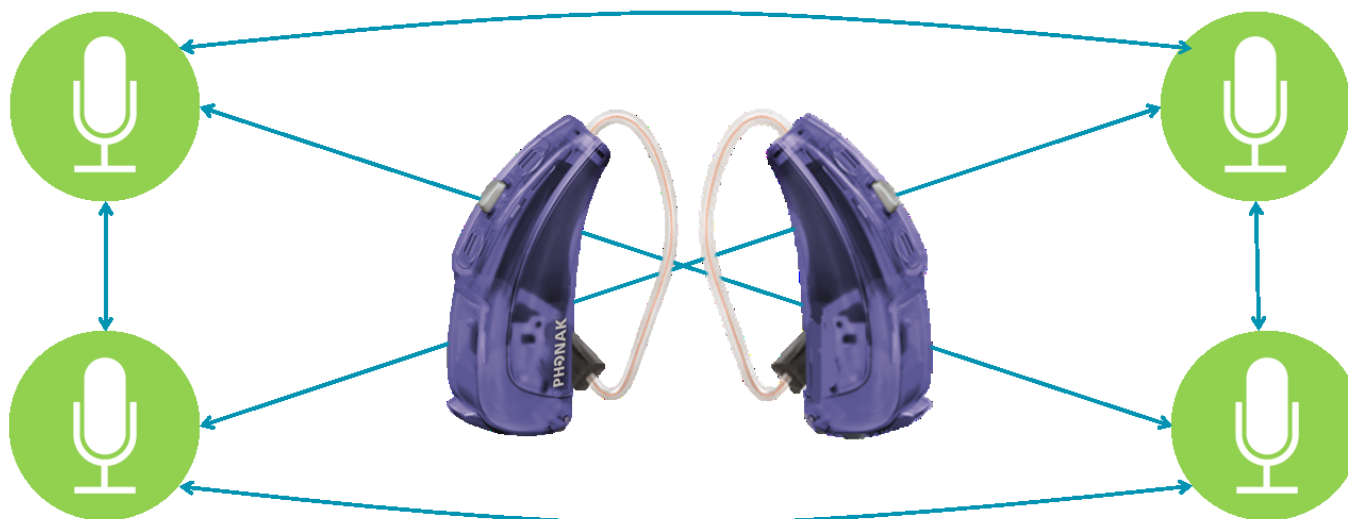
Hardware Evolution

Product development focused on:

- Comfort
- Design
- Miniturazation



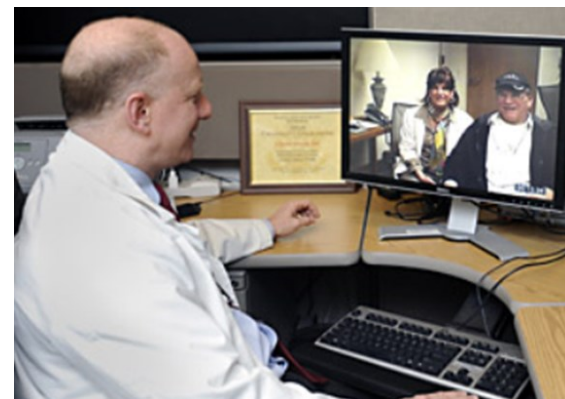
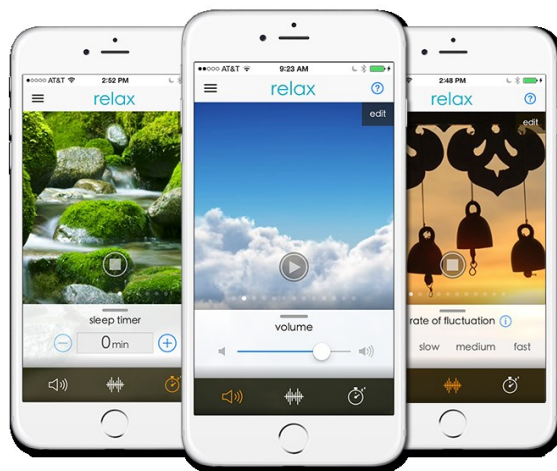
Binaural VoiceStream Technology™ The unique power of a four microphone network



Microphones			
Listening situation	Quiet	Noise	High level noise

Hearing Instruments Going Wireless

- Remote controls
- FM / DM radio technology
- Direct streaming to iPhone
- TV streaming
- Apps
- Tele-audiology



Research Activities in the Industry

Product Design &
Advanced Materials

Key Technologies
DSP, wireless, sensors,
power sources

Audiology & Fitting Methods
incl rehabilitation process

Signal processing &
acoustic design

Usage Design & Usability
Engineering

Basic aspects of hearing
and cognitive science

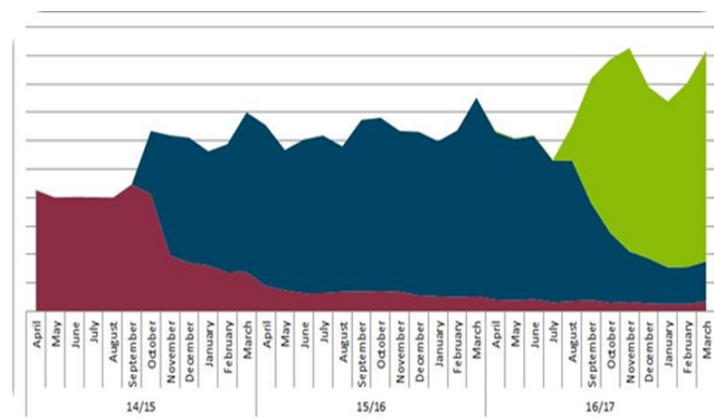


Digital transformation
mobile health, big data, ...

Broad range of research topics

Conclusions

- Hearing Instruments are highly sophisticated medical devices
- Since the digital revolution 20 years ago, technological developments have accelerated rapidly
- Hearing Instruments have become smaller, more comfortable and cosmetically more appealing over the past 10 years
- Hearing instruments are today very versatile with broad wireless applications
- The best patient outcome has been achieved when a patient's hearing loss and lifestyle is matched and optimized to the right hearing solution
- If we proceed with an OTC category we should do so with caution and with a full understanding of the potential patient impact





sonova
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Thank You