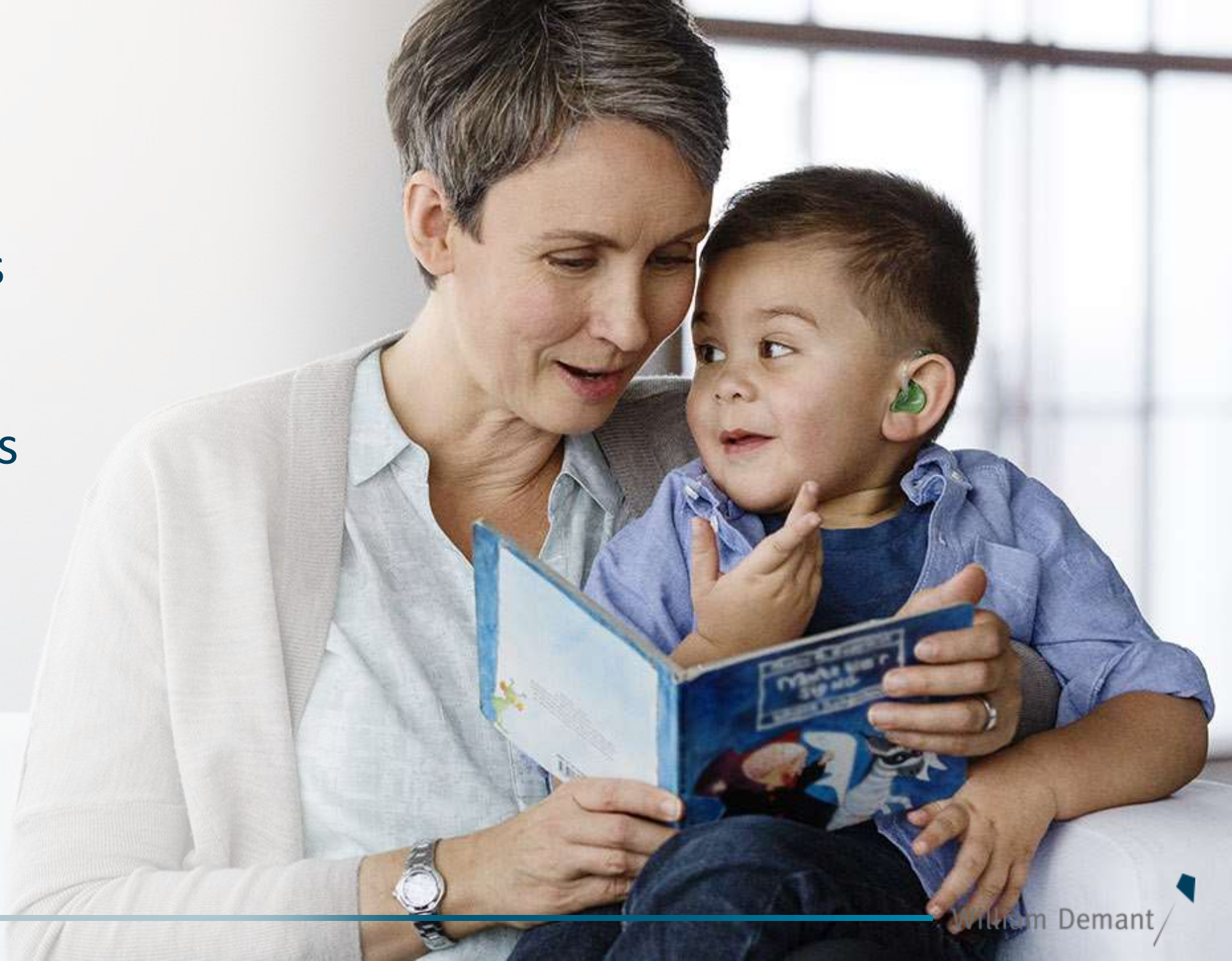
AudiologyNOW! 2016
14 April, Phoenix, AZ

Niels Jacobsen, President & CEO
Søren Nielsen, President of Oticon
Jes Olsen, President of Oticon Medical

William Demant

Agenda

- Group highlights
- Hearing Devices
- Hearing Implants
- Outlook 2016
- Q&A



Group highlights

Product launches in all business activities to drive growth in 2016

Hearing Devices

- 2015: The Group realised solid performance in the hearing aid wholesale business, driven by the successful launch of Oticon's Inium Sense platform
- 2016: Momentum to be driven by the launch of Oticon Opn™

Diagnostic Instruments

- 2015: Challenging market conditions in Russia and Belarus
- 2016: Growth to be fuelled by introduction of new audiometer and Balance System

Hearing Implants

- 2015: Slow growth due to anticipation of new CI system and exposure to oil-dependent markets
- 2016: Growth driven by several product launches by end 2015, including the new cochlear implant Neuro

Group transformation

Transition from a hearing aid manufacturer into a leading hearing healthcare company

*”To be one of the world’s two leading **hearing healthcare companies** with the broadest and deepest product offering based on true innovation – delivered to customers and end-users through a **multi-brand** approach backed by a comprehensive global distribution set-up and efficient **shared services**.”*

From narrow focused
hearing aid manufacturer & wholesaler …

…to global
hearing healthcare company

William Demant

Hearing Devices

A new paradigm

in hearing care

Søren Nielsen, President of Oticon

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The biggest challenge in hearing care

Dealing with difficult listening situations with many speakers

Today’s technology does not solve the problem

No hearing aid

Traditional solution

When you close down sound, you close down life

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Welcome to the **New OpenSound Paradigm**

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Opening up instead of closing down

Directionality as we know it is a thing of the past

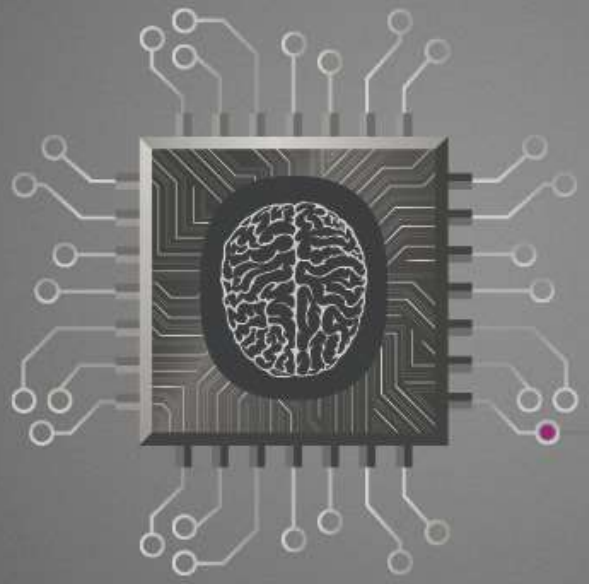
Traditional

Opn™

New Velox™ Platform

Power & Speed

New
Oticon Opn™



50 times faster*

TwinLink™

64 frequency
band resolution

*Compared to Inium Sense

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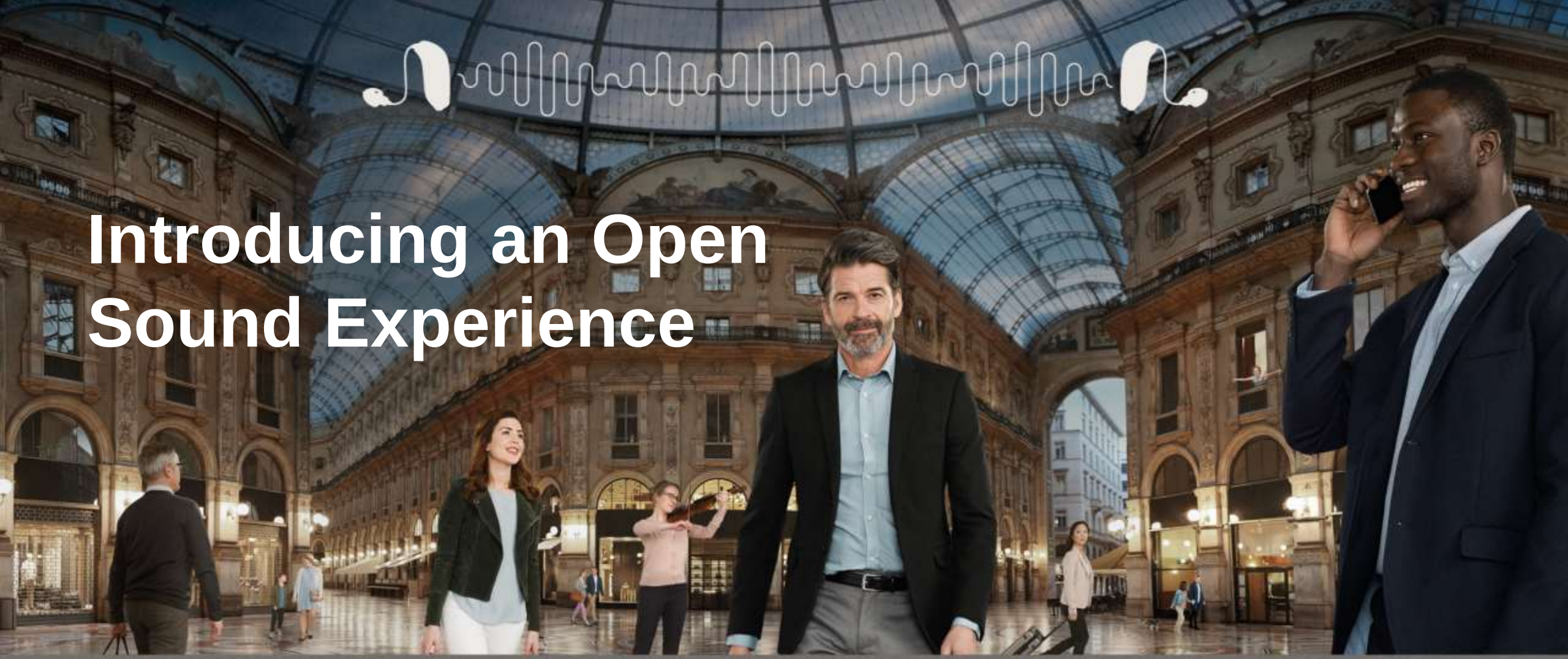
OpenSound Navigator™

OpenSound Experience

“Less stress. Remember more. Better hearing

- Analyses 100/sec
- Balances individual sounds
- Attenuates remaining noise

Introducing an Open Sound Experience



OpenSound Navigator + Spatial Sound LX = An open sound experience

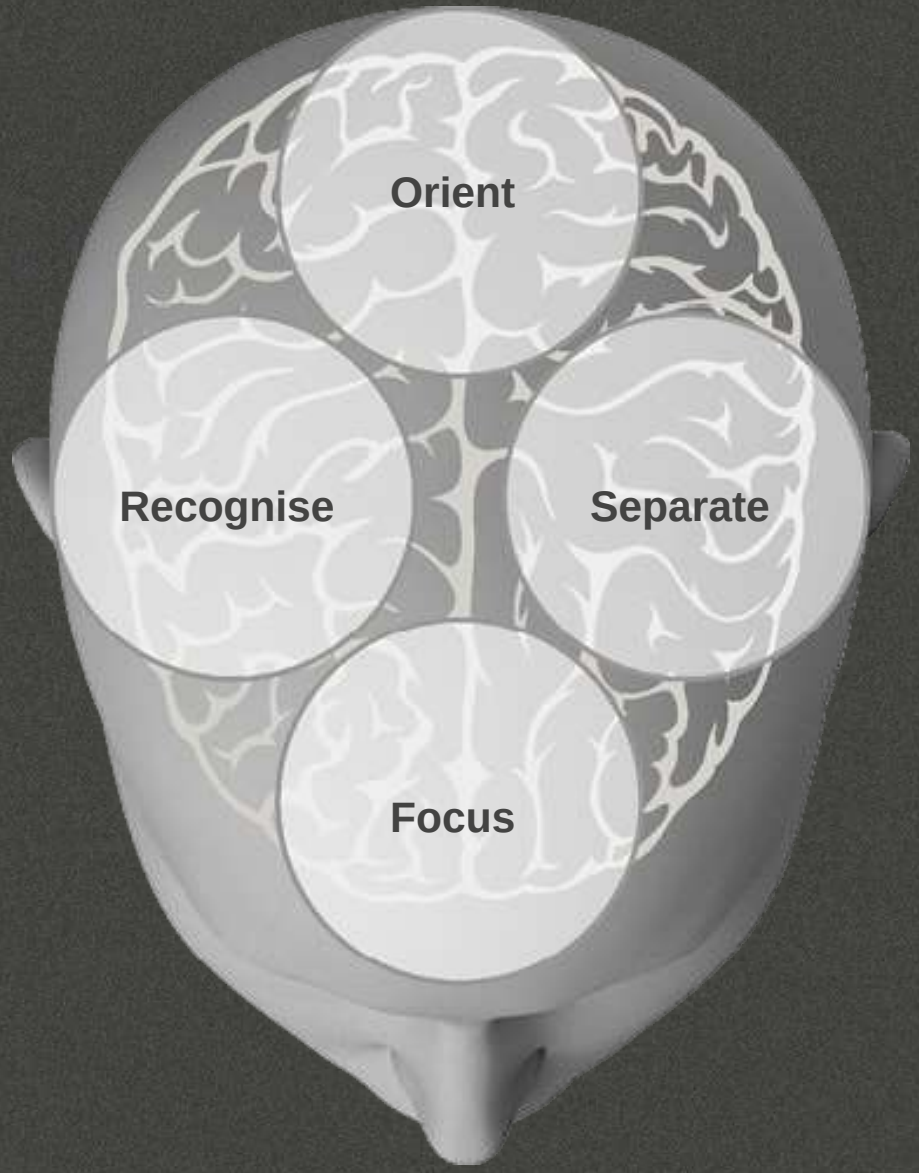
Oticon Opn™ is easy on the brain

Next Level BrainHearing

20% less listening effort*

Remember **20%** more*

30% better speech understanding*



*Based on preliminary data

New way of measuring benefits

Pupillometry

- Oticon is the first hearing aid manufacturer to use pupillometry to measure listening effort

20% better listening effort

For the first time ever,
a hearing aid with two communication systems

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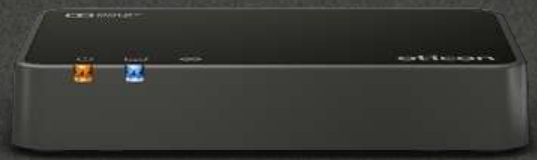
Open up and connect to the world

Download on the App Store

GET IT ON Google Play

Remote control adjusts volume, toggles between programs etc.



TV adapter transmits audio directly to the hearing aid

ConnectClip streams audio wirelessly

Plugged into a PC the USB transmits the audio directly to the hearing aid

ON oticon

New Oticon ON app for iPhone, Android devices and Apple Watch

IFTTT

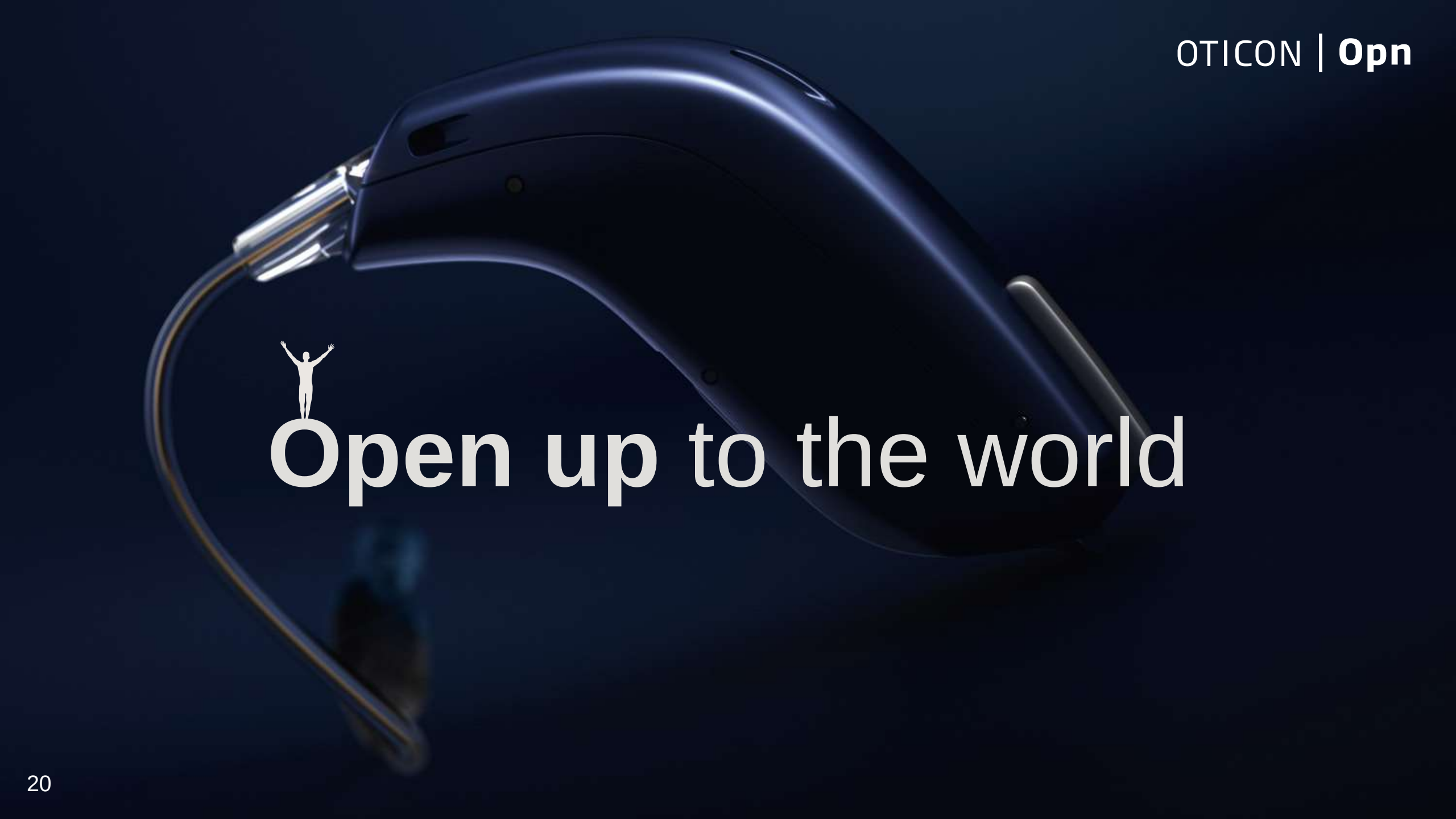
Connected to the internet

TwinLink
NFMI + 2.4 GHz

FittingLINK used by the dispenser to program the hearing aid

Made for iPod iPhone iPad

The world's first internet-connected hearing aid



Open up to the world

Opn™ Audiology and Benefits

Thomas Behrens
Head of Audiology

A BrainHearing Solution for Speech in Noise:

From zero to when it really gets tough!

- Complex situations
  - Many sound sources
  - Moving around
  - Dynamically coming and going
  - Unpredictable
- This is where people with a hearing impairment have the largest unmet need!

Gatehouse & Akeroyd, 2006

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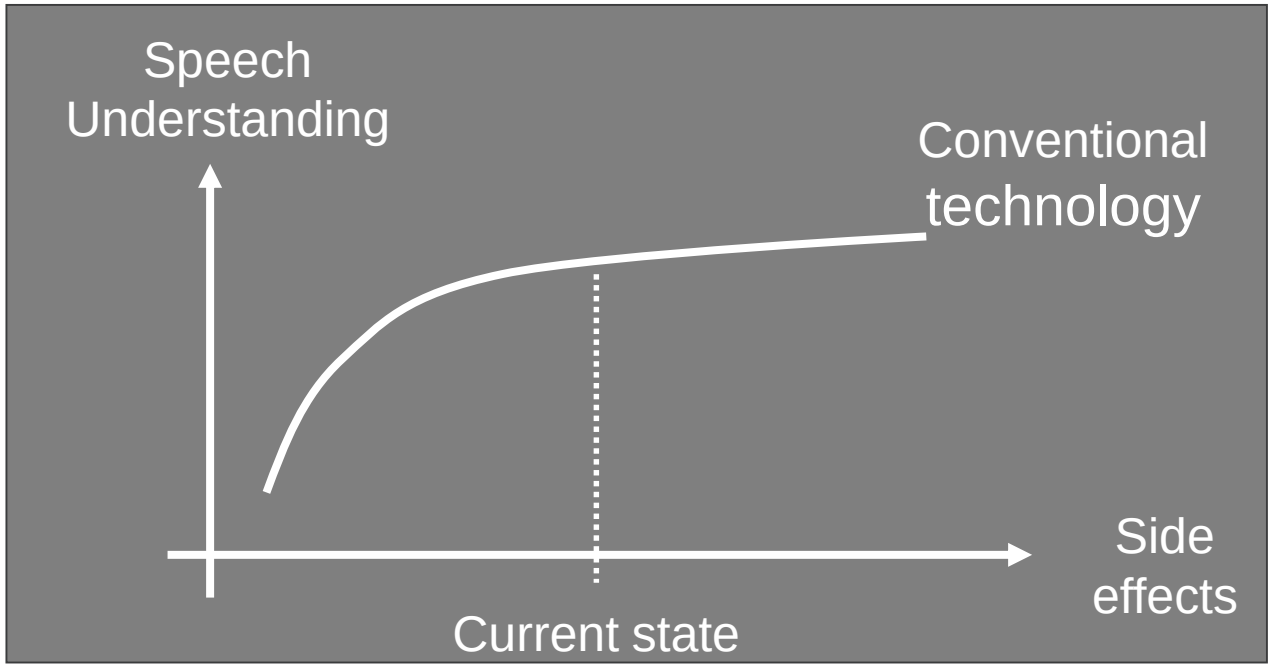
Challenges with current technology

Analysis of the most recent research literature

- Directionality can make it hard to orientate effectively in complex environments (Brimjoin et al 2014)
- Narrow directionality only a viable solution when the environment is highly predictable (Best et al, 2015)
- Narrow directionality does not provide benefits over conventional directionality in many listening environments (Picou & Ricketts, 2015)
- Listeners do not like to use narrow directionality in daily life (Beach et al, 2015)



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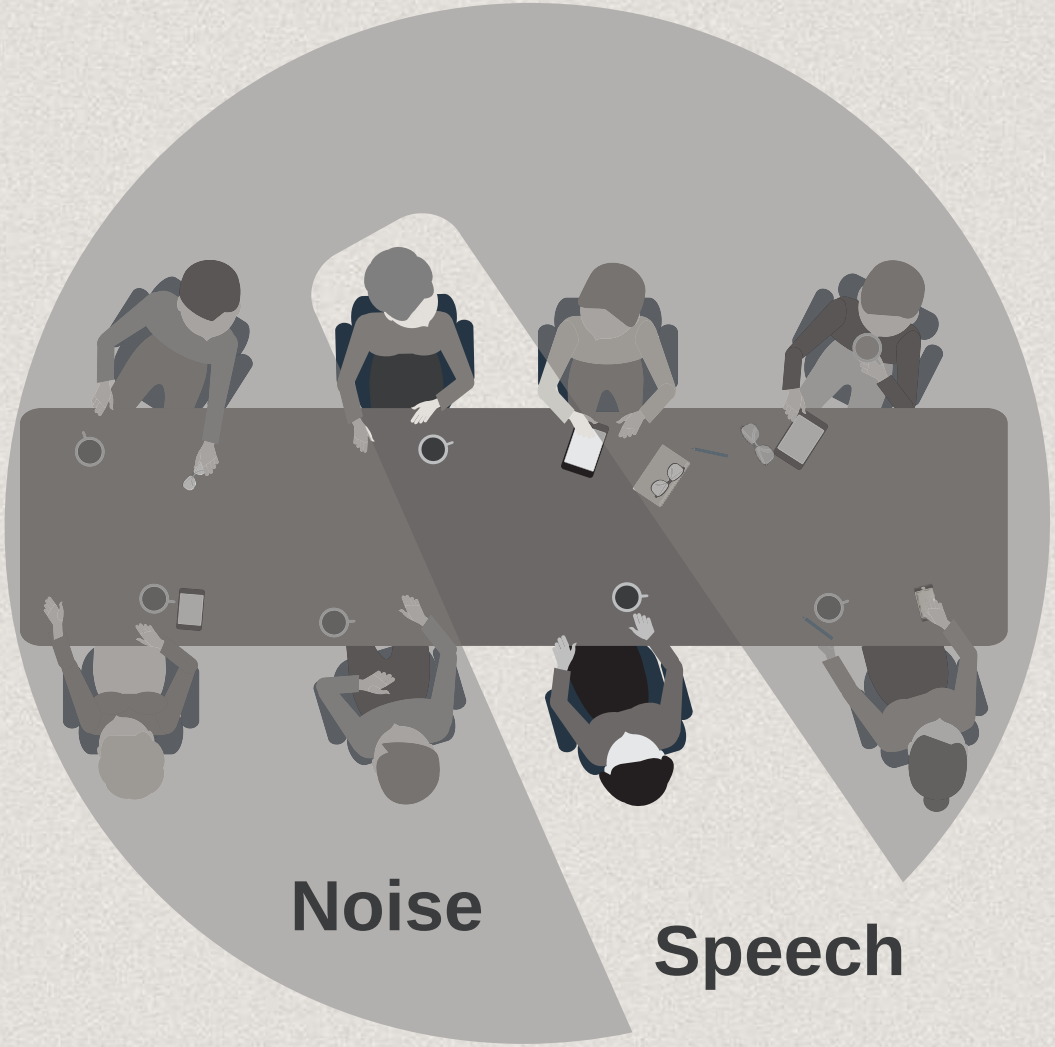
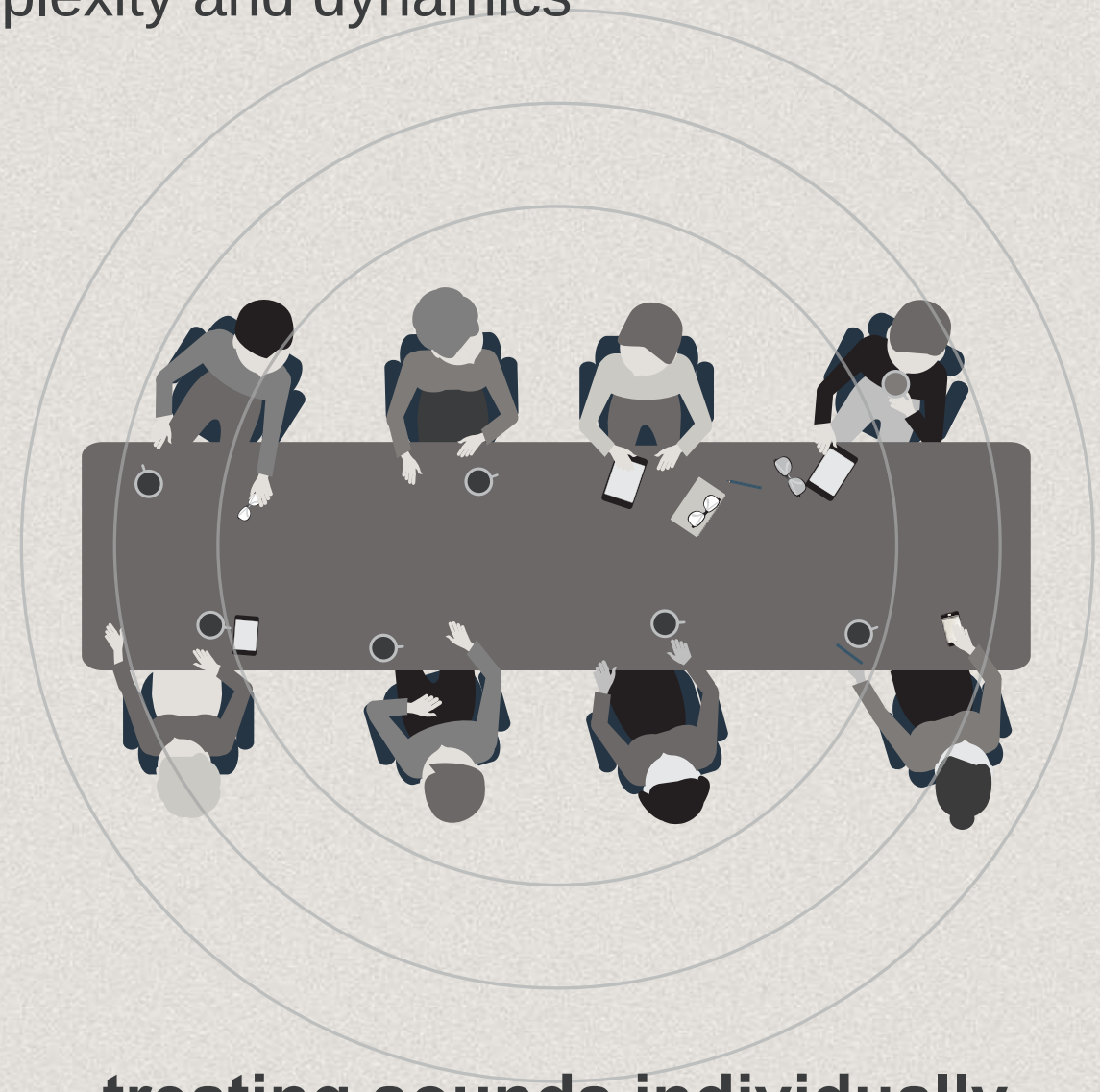
Velox and Opn

- the power & the speed to handle complexity and dynamics



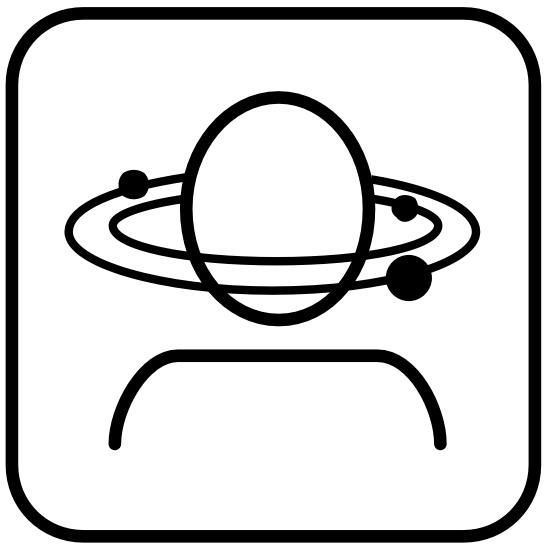


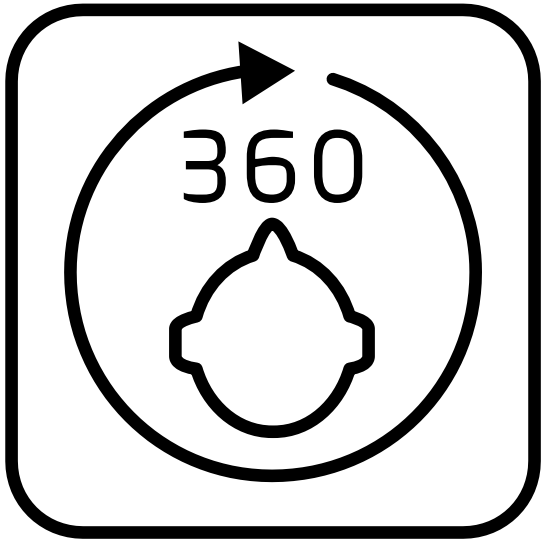
From speech and noise to…… treating sounds individually

Platform and features to deliver OpenSound Experience

Ensure the elements of a sound scene are continually accessible

OpenSound Navigator + Spatial Sound^{LX} = OpenSound Experience





TwinLink
NFMI + 2.4 GHz

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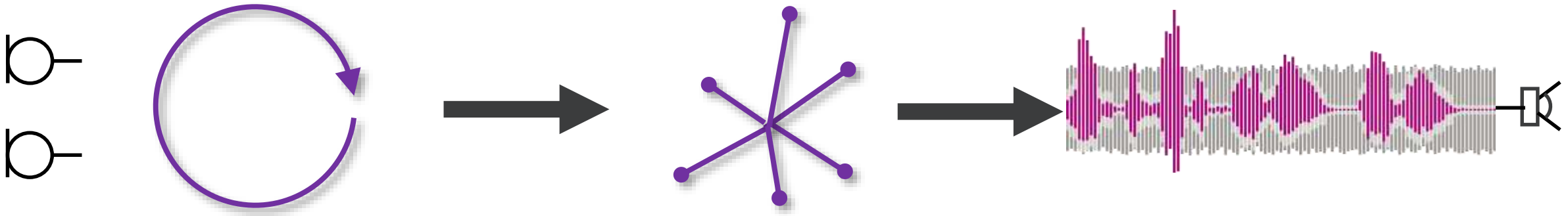
OpenSound Navigator

Help for situations with speech in speech in noise



Analyze

- Monitors the 360° 100+ times per second.
- Identify all sounds speech, noise, level, position, frequency

Balance

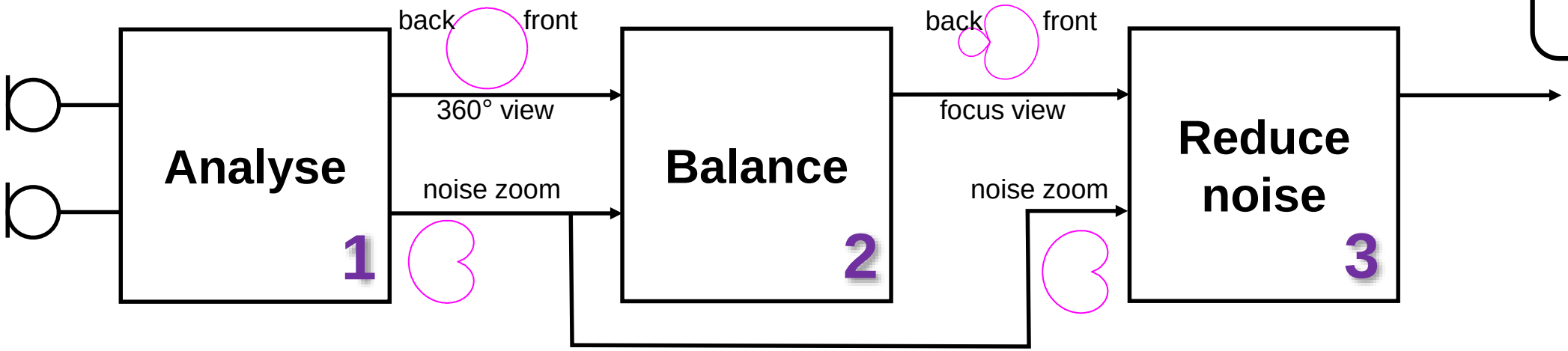
- Adjusts levels of individual sources
- Clear focus
- Remainder accessible but not disturbing

Reduce Noise

- Rapidly and effectively
- It can even attenuate remaining noise from the front and between words

Multiple Speaker Access Technology™

Signal Processing behind the OpenSound Navigator



1

Two **views** of the world:

- a 360° view
- a zoom on noise

2

Handle **localised "noise":**

- **Balancing principle:** Source with most energy in each of 16 channels
- **Open Sound principle:** Keep sound from front and sides open

3

Handles diffuse noise or noise from the front

- **It can process so fast, it can handle noise between words**

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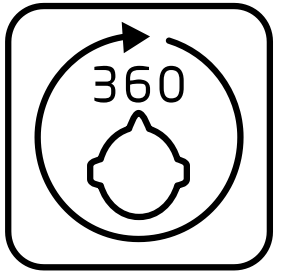
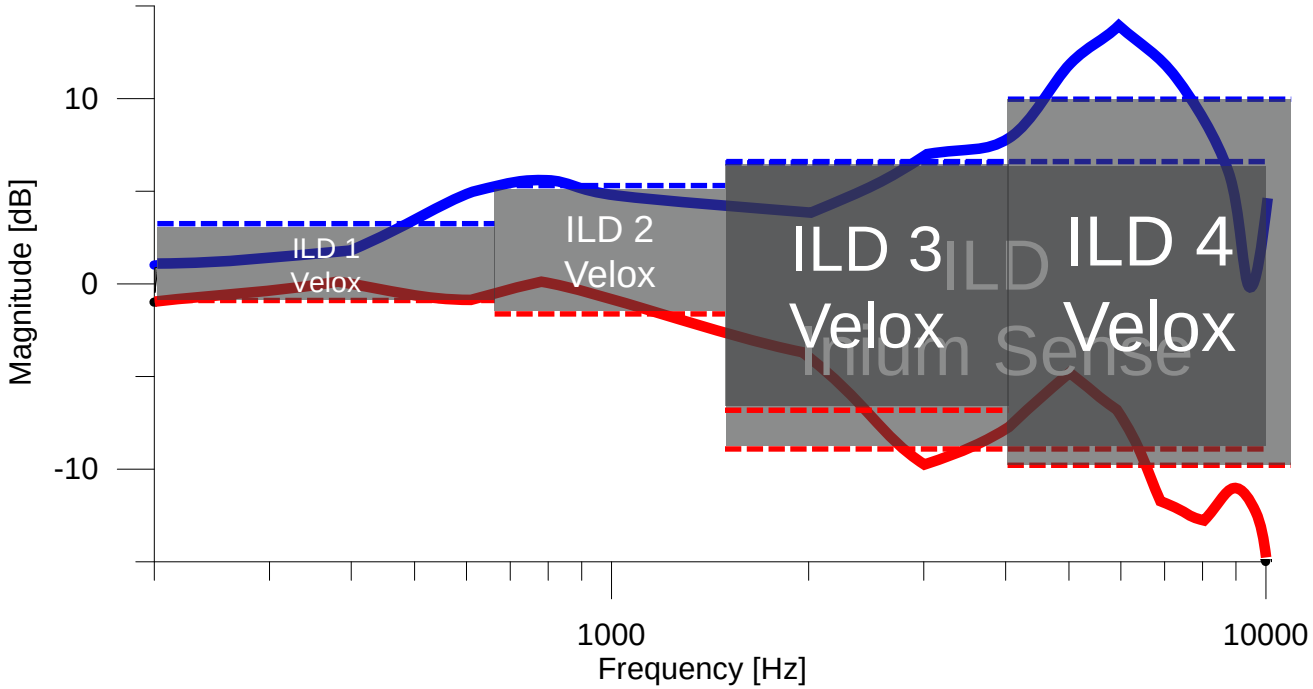
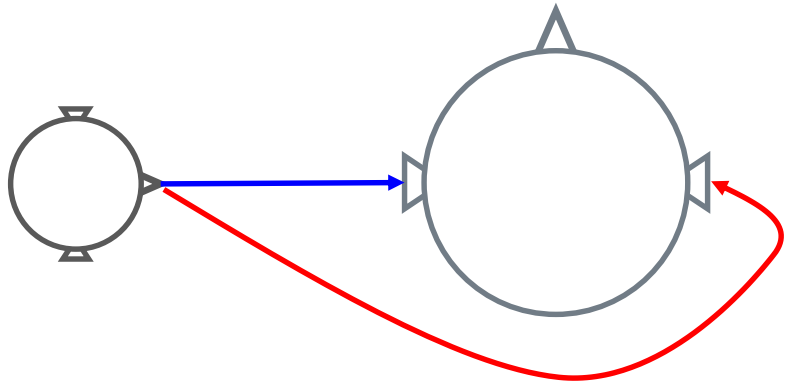
Spatial Sound^{LX}

Powered by TwinLink



- 200%+ increase in binaural communication capacity
  - Total capacity: 320 kbit/sec vs. 96 kbit/sec in Inium Sense
  - Exchange rate: 21 times per second vs. 5 in Inium Sense
  - Frequency bands: 4 bands vs. 1 band in Inium Sense.
- OpenSound:
  - more accurate and updated information about where the sounds are coming from.
  - supports the ***OpenSound*** experience by making it easier to **locate** sounds





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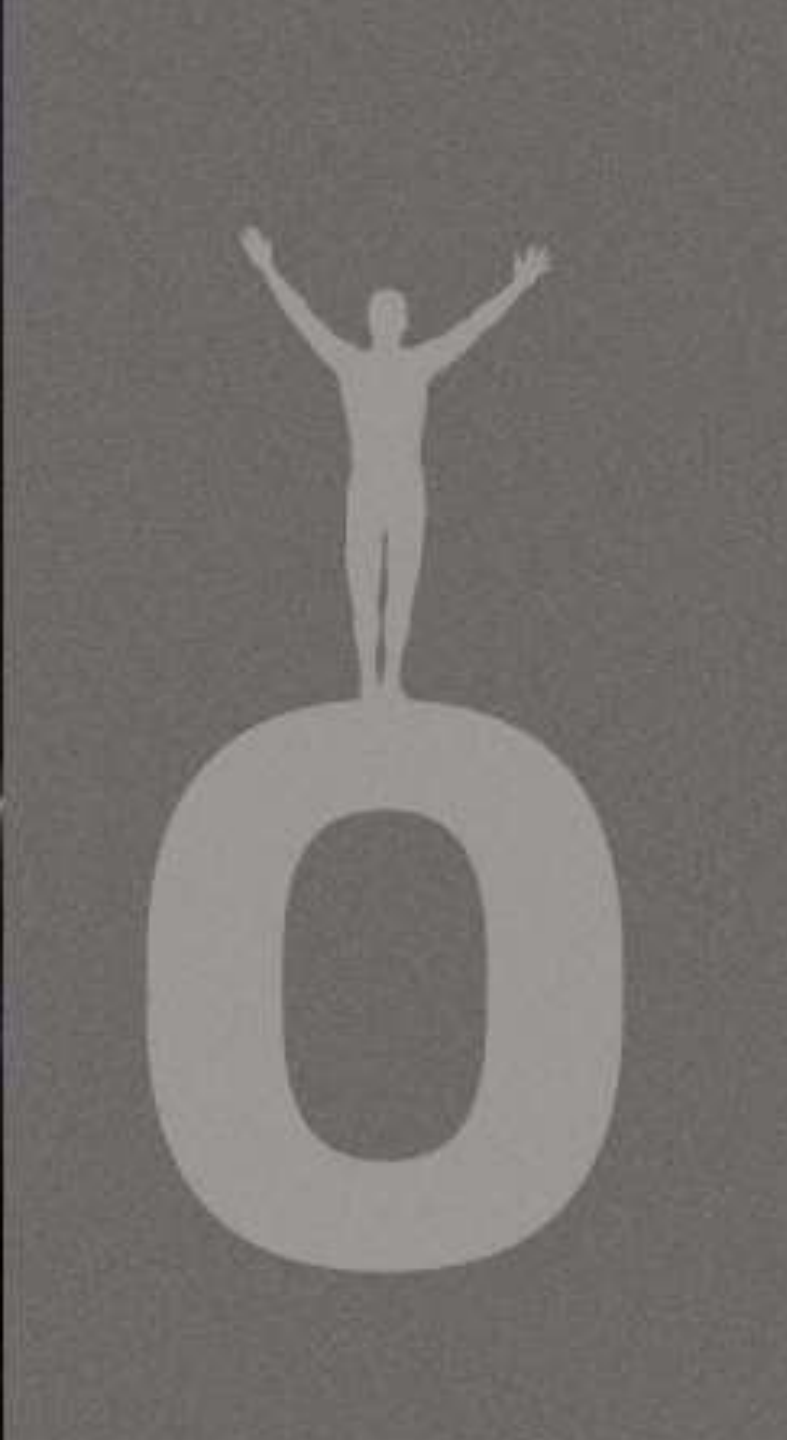

First Hearing Aid Proven to be Easy on the Brain

- 20% less load on the brain*
- allows you to re-member 20% more**
- and understand 30% more**

* Wendt et al 2016
**Based on preliminary data. To be revealed at launch.
More details available at Research part of the Oticon booth

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Pupillometry study at Eriksholm

1st of 6 Opn research studies initiated

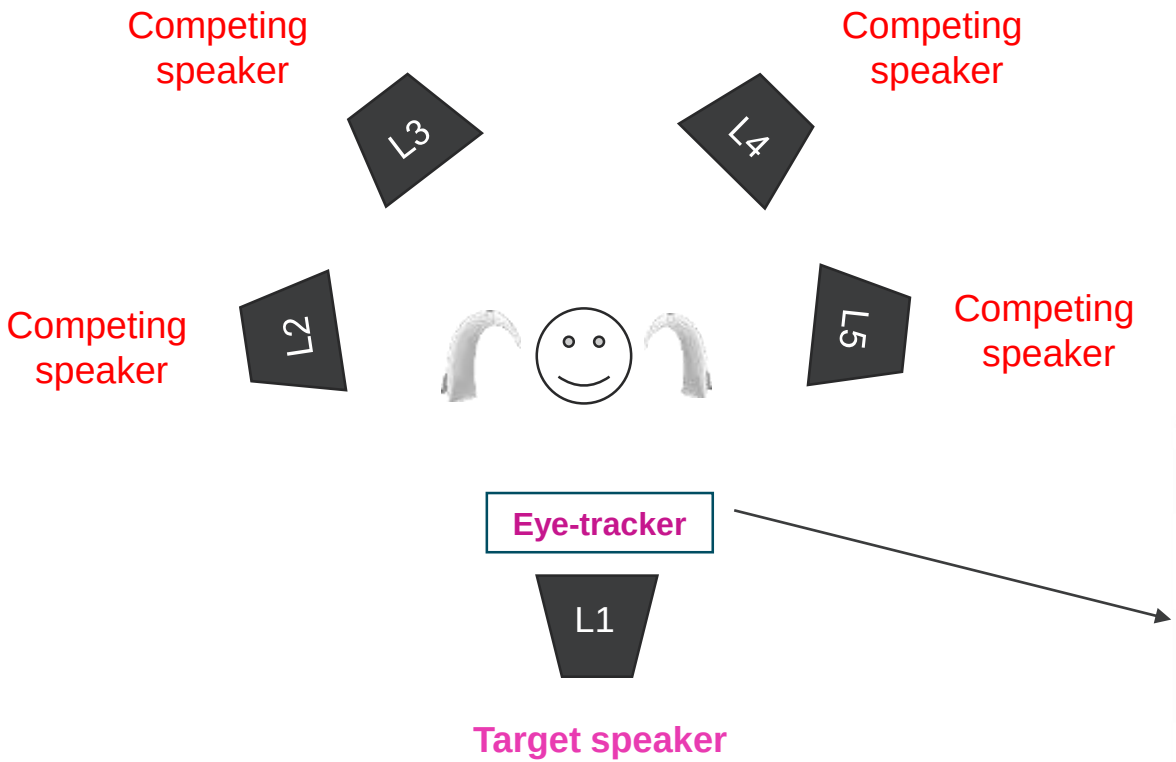
- Pupil react to changes in sympathetic nervous system (SNS)
- It is a reaction of the SNS due to perceived stressful conditions

Pupillometry in audiology and hearing science

- Pupil size reflects changes in mental effort – a more challenging task is indicated by a larger pupil (*Kahneman,1973*)
- Pupil size used to quantify effort required for speech recognition in noise *(e.g. Kramer et al., 1997, Koelewijn et al., 2012, 2014)*
- Pupillometry is sensitive and valid cognitive load index (Zekveld et al 2012)

Setup to Mimic Complex Listening Environment

In the Cognitive Hearing Science lab at Eriksholm



Wendt et al 2016

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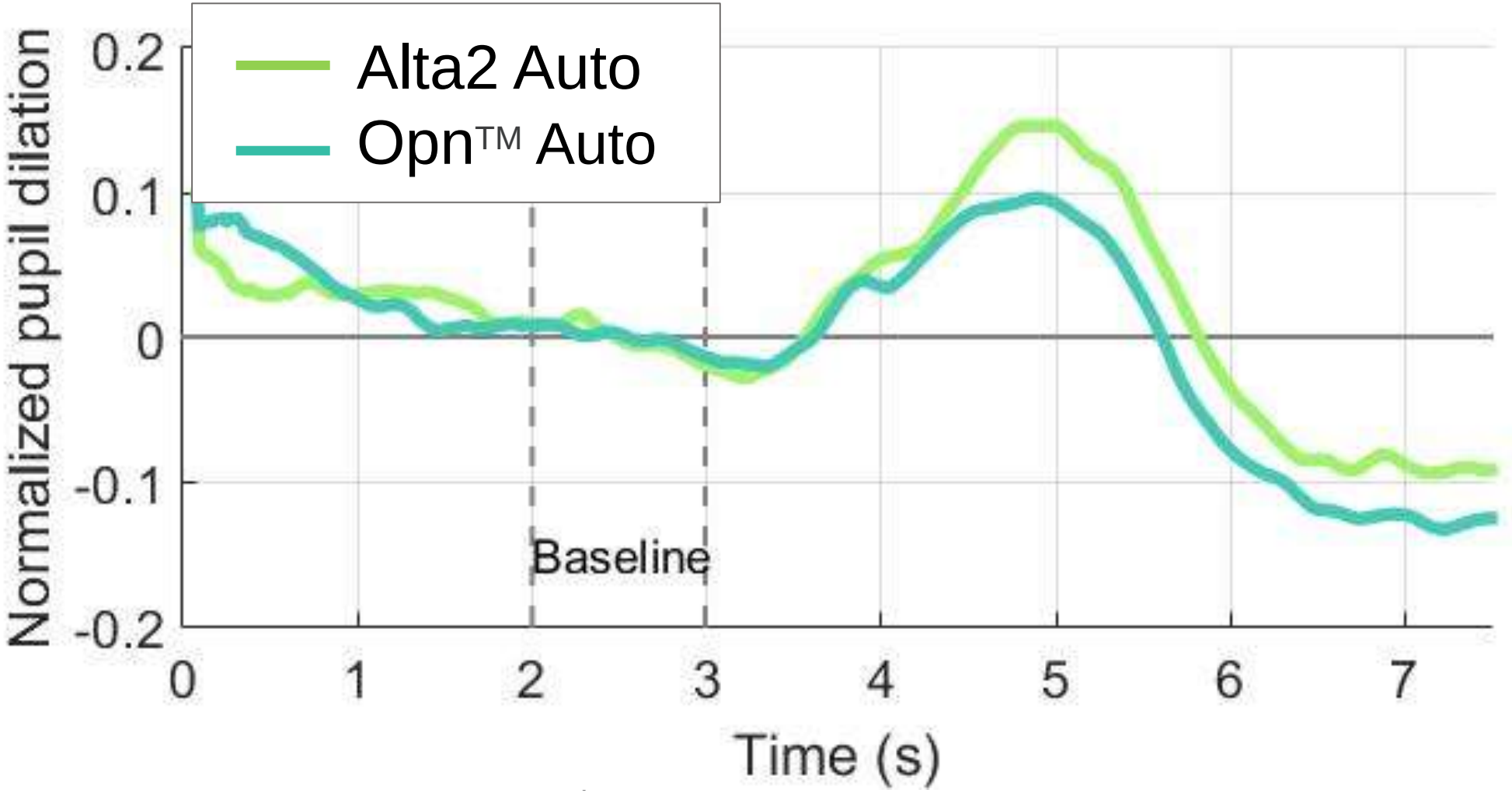
Results: Opn default versus Alta2 default

Cognitive effort for 95 % speech understanding



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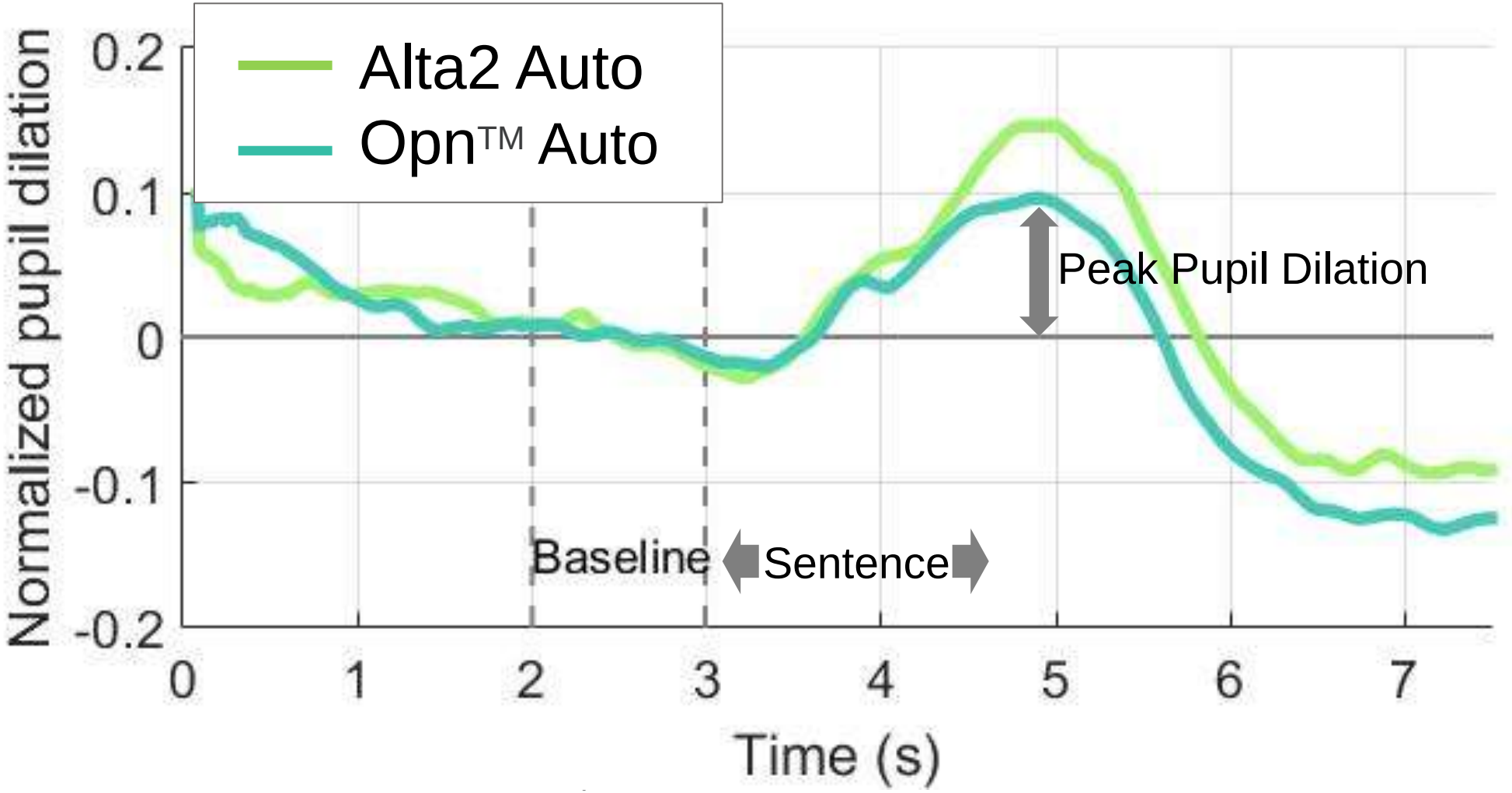

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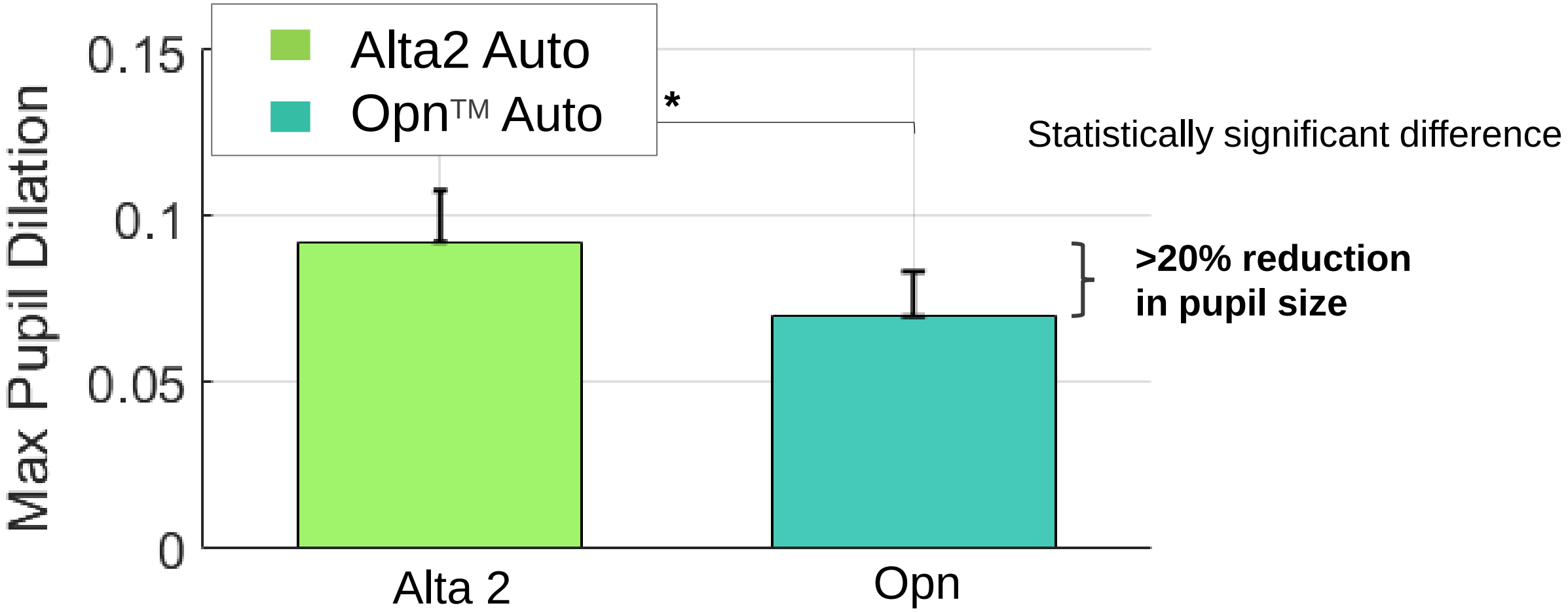

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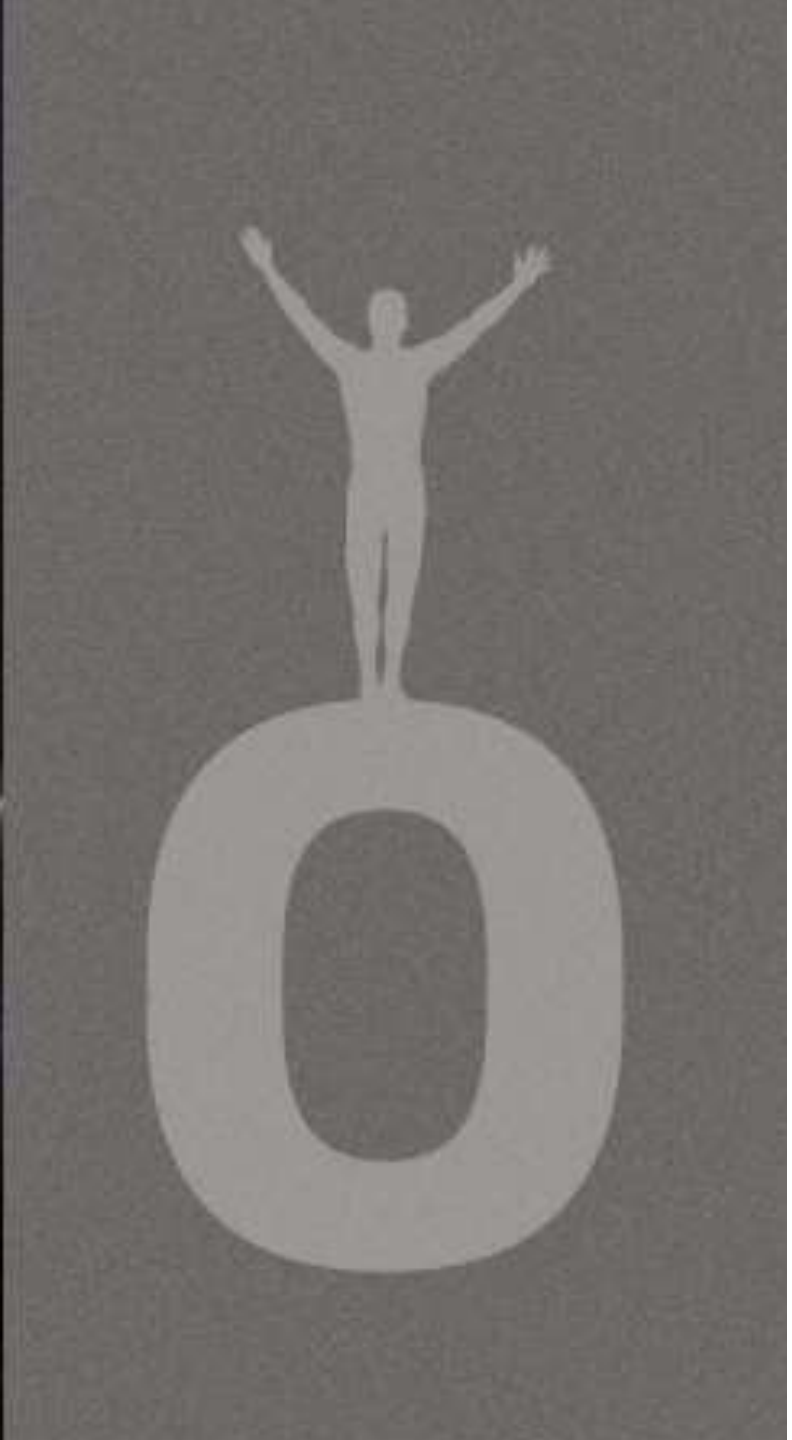

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Technology overview

Søren Nielsen
President of Oticon

TwinLink® technology

Unique offering with ideal technology for each use case

- NFMI (Near Field Magnetic Induction) is used to interface binaurally between hearing instruments
- 2.4 GHz Bluetooth Smart® is used for programming and to interface with multi-media and consumer devices including direct audio streaming with Apple® iOS devices
- The two technologies co-exist without interference and can operate independently

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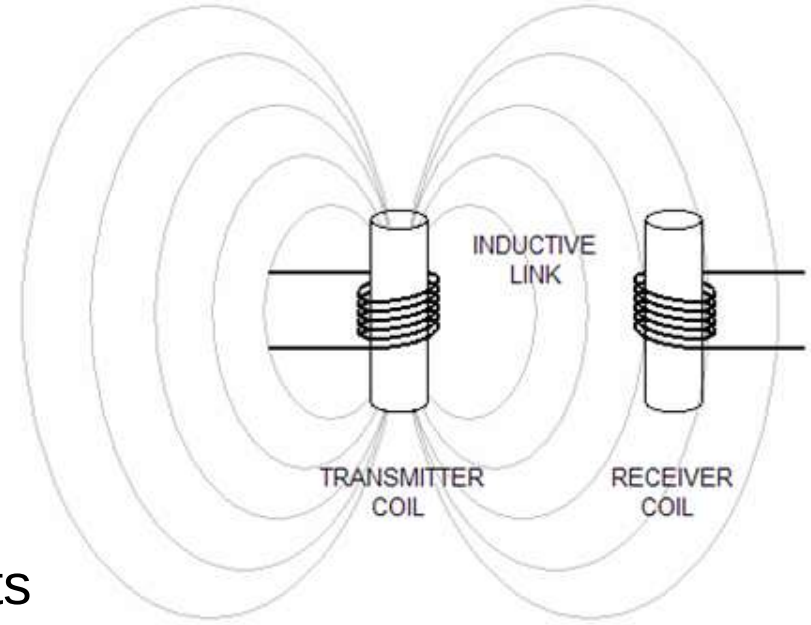
NFMI – Near Field Magnetic Induction

- A short range (1-1.5 m) wireless system communicating by coupling a non-propagating resonating magnetic field between devices
- Operates at <15 MHz (Oticon 3.84 MHz) and only needs <10% of the transmission power of RF (e.g. 2.4 GHz) systems
- Is immune to radio frequency interference and is not degraded by the human body blocking the field
- Simple antenna design easily adapted in hearing instruments



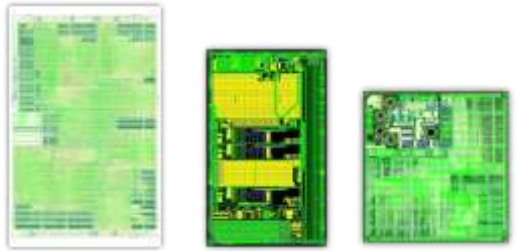
- **Ideally suited for continuous binaural communication between hearing instruments due to minimum power consumption and no signal degradation**

Radio frequency (RF) technology

- Radio waves propagating through space after transmission from an antenna
- Can transmit over longer distances >100 m depending on technology
- Radio waves are affected by e.g. reflection and absorption
- At 1 GHz 99% attenuation occurs within 15 mm of human tissue
- Higher current consumption (>10x compared to NFMI)
- Complex hearing instrument antenna design
- 2.4 GHz Bluetooth Smart® RF is suited for interfacing with consumer devices due to:
  - Long distance capability
  - Acceptable power consumption for media consumption and phone calls
  - Standardisation eliminating the need for intermediate devices

Benefits on in-house design

- Electronics designed for running directly on 1V battery
  - Optimised current consumption
  - No efficiency loss from battery to integrated circuits (IC)
- Size and integration advantages
  - Smaller IC dies with aspect ratios optimised for the hearing instrument application
  - Full access to all layers in the IC and SW enabling higher integration
  - Optimised modularity for size and quality
  - Reduced IC die cost including NRE
  - Efficient and high quality production through design for manufacturing



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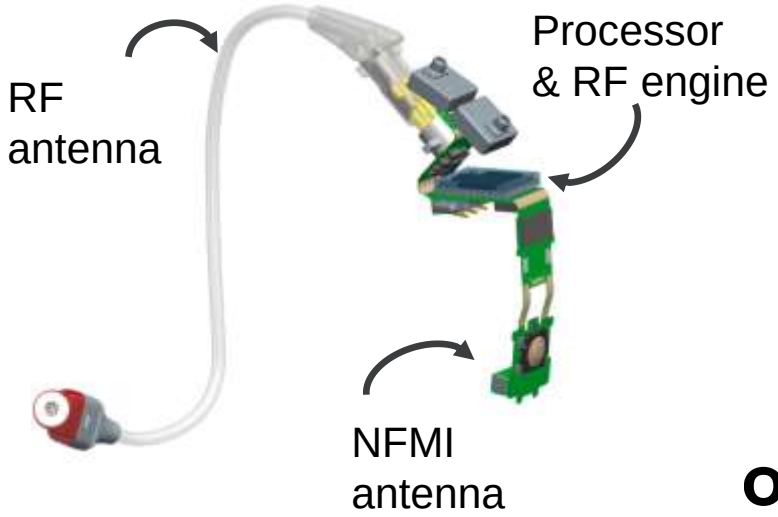
Looking under the hood

The engine of Oticon Opn™

- In-house designed
  - Every single component has been optimised to satisfy a continuous miniaturisation while at the same time living up to strict product requirements
  - Composite plastic materials with excellent properties have been applied to support design of small details with high quality & reliability
- Highly experienced international R&D team
  - Leading knowledge of system integration and miniaturisation



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Looking under the hood

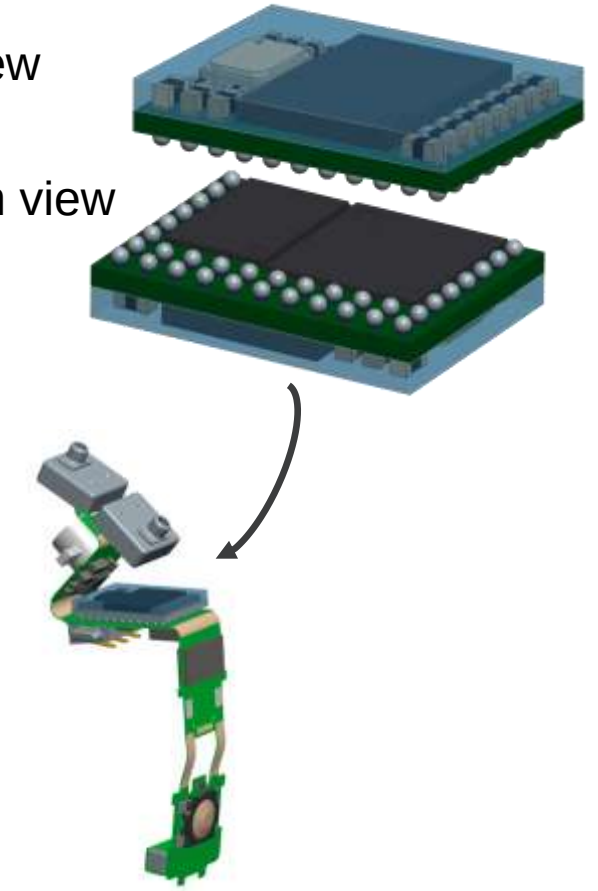
The engine of Oticon Opn™

- State-of-the-art module packaging technology has been applied to Oticon Opn™
- Future-proofed in terms of adding functionality and product styles
- Compared to the previous generation a quantum leap in processing power and performance in all areas has been introduced in addition to RF 2.4 GHz functionality
- This step has been done without penalty in size and power consumption

Module: 5.8 x 4.2 x 1 mm3 = 24,4 mm3

Top view

Bottom view



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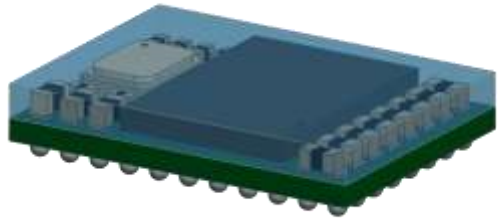
Extreme Processing Power – without sacrificing power

Unique capability enabling superior audiology – 10x increased dynamic range

	Velox™	Inium Sense
Technology (nm)	65	130/180
Transistors (M)	64.5	8.7
Die size FE+DSP **FE+DSP+RF (mm2)**	15.8 23.5	23.7 -
DSPs	7+1	1
Channels	64	16
Max input dynamic (dB SPL)	113	93
2.4 GHz direct streaming	✓	-



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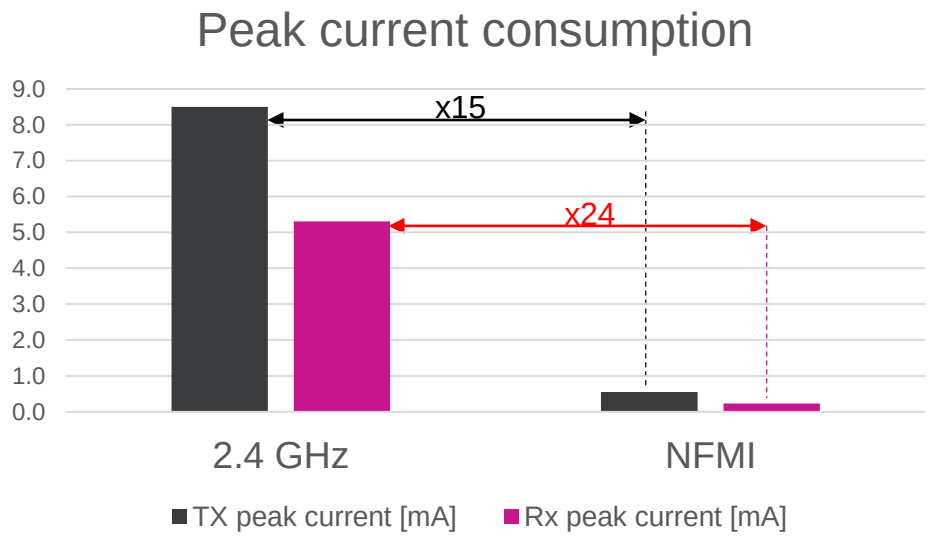
Near Field Magnetic Induction (NFMI) performance

Velox™ improved in all areas

- Velox™ vs. Inium Sense
  - >3x band width
  - 25 - 83% decrease in peak current consumption

	Velox™	Inium Sense
Technology (nm)	65	180
NFMI frequency (MHz)	3.84	3.84
Bitrate (kbit/s)	320	96
NFMI Tx/Rx peak (uA)	500 150	3000 200

- NFMI vs. 2.4GHz
  - NFMI has up to 24 times lower peak current than 2.4 GHz
  - NFMI ideally suited for short range ‘always on’ applications such as binaural interfacing



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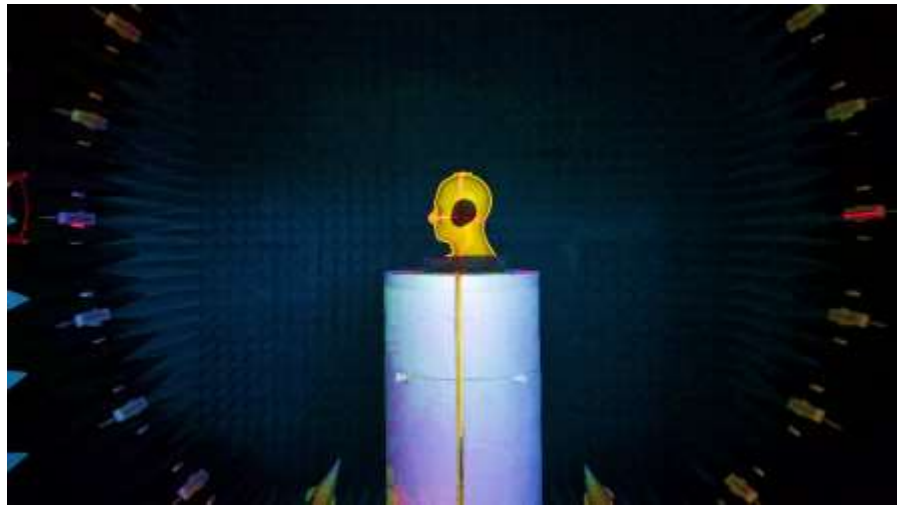
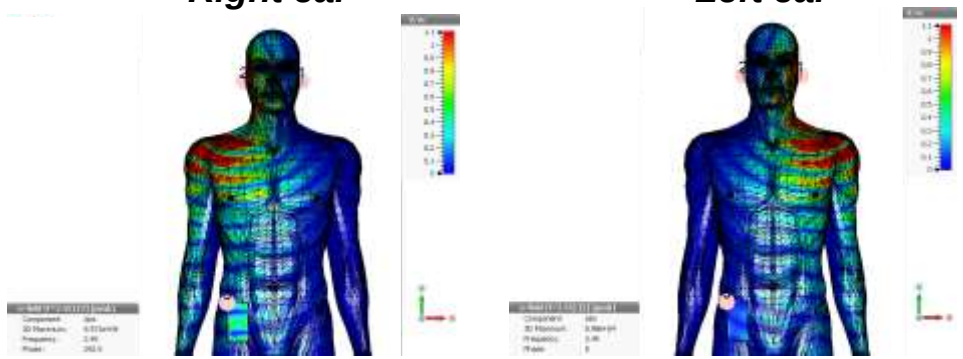
State of the art radio frequency (RF) engineering

- More than 10 years experience in radio technology and antenna design
- In-house world class RF experts and state of the art tools
- Simulation of relevant user scenarios in order to optimise electronic design and create leading user experiences



Right ear ***Left ear***



Link Quality

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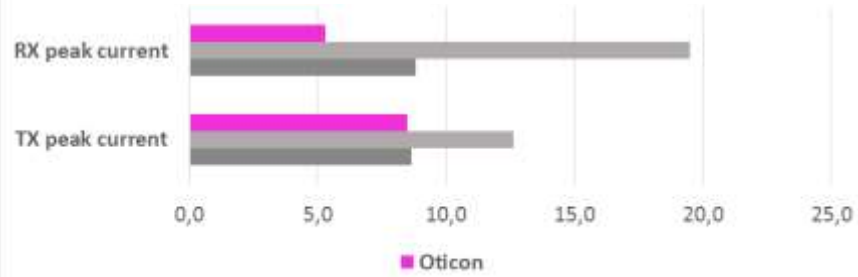
Market leading 2.4 GHz performance

Own development to get performance advantage

- Oticon's 2.4 GHz IC radio is among the best in class across all industries with respect to current consumption
  - Receiver performance has significant advantage
- Opn™ uses 35% less power than the market benchmark when streaming from an iPhone
- Oticon Opn™ is prepared to meet future possible interference from expanding LTE traffic in neighboring frequency bands (i.e. 2.3 GHz/2.5 GHz)

	Oticon	Nordic nRF51822 (In market)	Nordic nRF52832 (New)
Chip size [mm2]	7.9	13.2	9.6
Supply voltage [V]	1.0 to 1.7	1.8 to 3.6	1.7 to 3.3
2.4 GHz 1Mbps Sensitivity [dBm]	-96	-93	-96
Rx peak current [mA] (1 Mbps 2.4 GHz)	5.5 (1.2V)	13 (1.8V)	10.9 (1.7V)
Tx peak current [mA] (1 Mbps 2.4 GHz)	8.5 (1.2V)	10.5 (1.8V)	9.6 (1.7V)

BT Smart Radio
Tx peak current (1.2V, 0dBm), Rx peak current (mA)



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2.4 GHz range benchmark

Best in class ‘robustness’ in real life situation

- Optimised performance for real user scenarios
- Superior range in excess of 10 m
- Range claims must take into account sound artefacts, drop outs etc.
- Example: TV watching using Oticon Opn™

Distance (m)	1	2	3	4	5	6	7	8
BACK								
F2F								
Right								
Left								

Perfect link
Sound artefacts
Poor or no connection

F2F: Head facing towards TV. Right: Head facing right
Left: Head facing left Back: Head facing opposite TV (only listening)

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2.4 GHz sound quality benchmark

- The optimised power consumption of the Oticon 2.4 GHz radio enables direct audio streaming at a higher data rate giving better sound quality

- Oticon uses the best MFi speech codec at 64 kbps compared to the de facto 48 kbps in the market (33% improvement)

- Technology selection of Oticon is leading in terms of resolution

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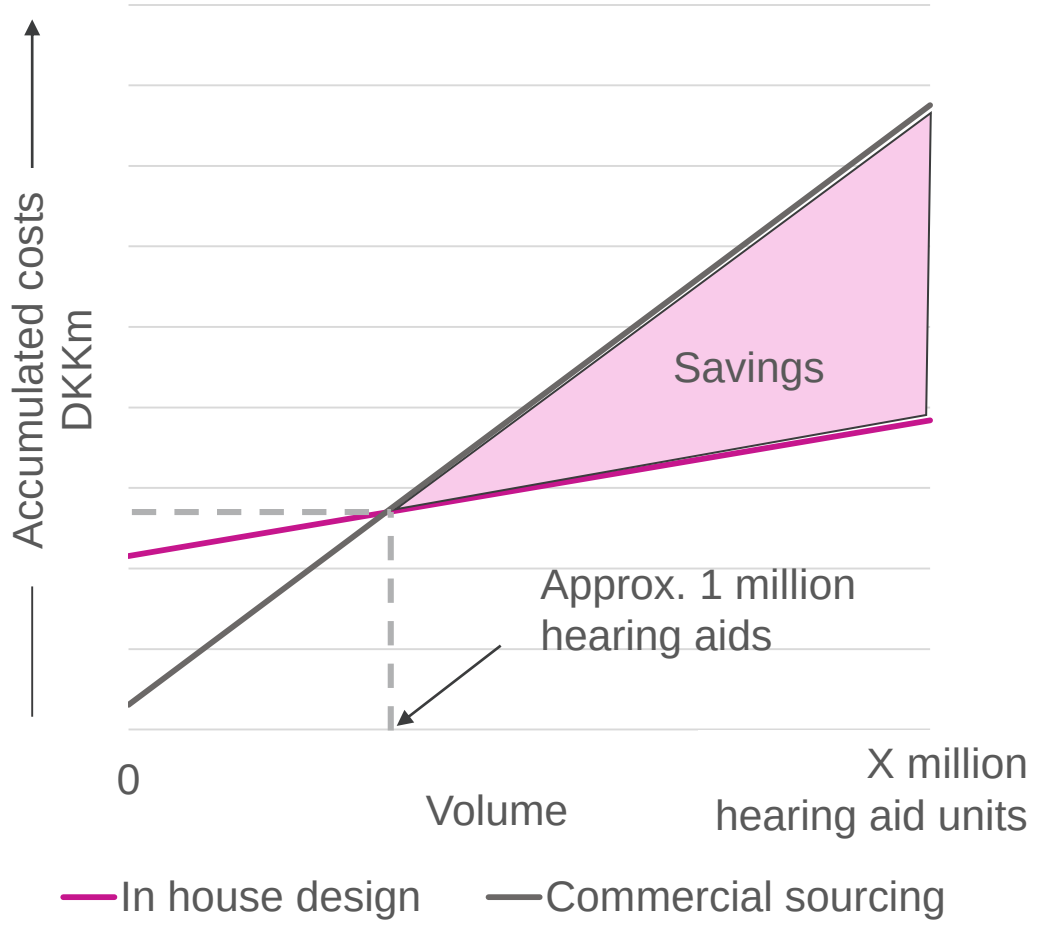
Financials of in-house design

Additional benefits of in-house design

- The engineering capability of Oticon enables in-house design of the chip-set
- Oticon can as a consequence source the chip-set without mark-up from third party
- Even when including the initial R&D investment the average chip-set price is a fraction of commercial chip set offerings
- The economies of scale within in-house design begin after approx. 1 million hearing aids manufactured
- This enables Oticon to introduce very attractive solutions at competitive price levels going forward



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Bluetooth SIG and EHIMA MOU

Next step in wireless communication – towards all multimedia devices

- In March 2014 Bluetooth Special Interest Group (SIG) and EHIMA announced a memo of understanding (MOU)
- This partnership aims to develop a standard for new hearing aids while improving existing features and creating new ones with Bluetooth® wireless technology

Patenting

Oticon Opn™ patenting

- OpenSound Navigator™
  - Several patents and patent applications relating to new noise attenuation, binaural compression (Spatial Sound™)
- TwinLink™
  - Several patents and patent applications relating to Near Field Magnetic Induction (NFMI) link enabling binaural processing
  - Several patents and patent applications relating to connectivity with devices using 2.4 GHz
- Internet-connected hearing aid
  - Patent application relating to a hearing aid using IfThisThenThat (IFTTT)

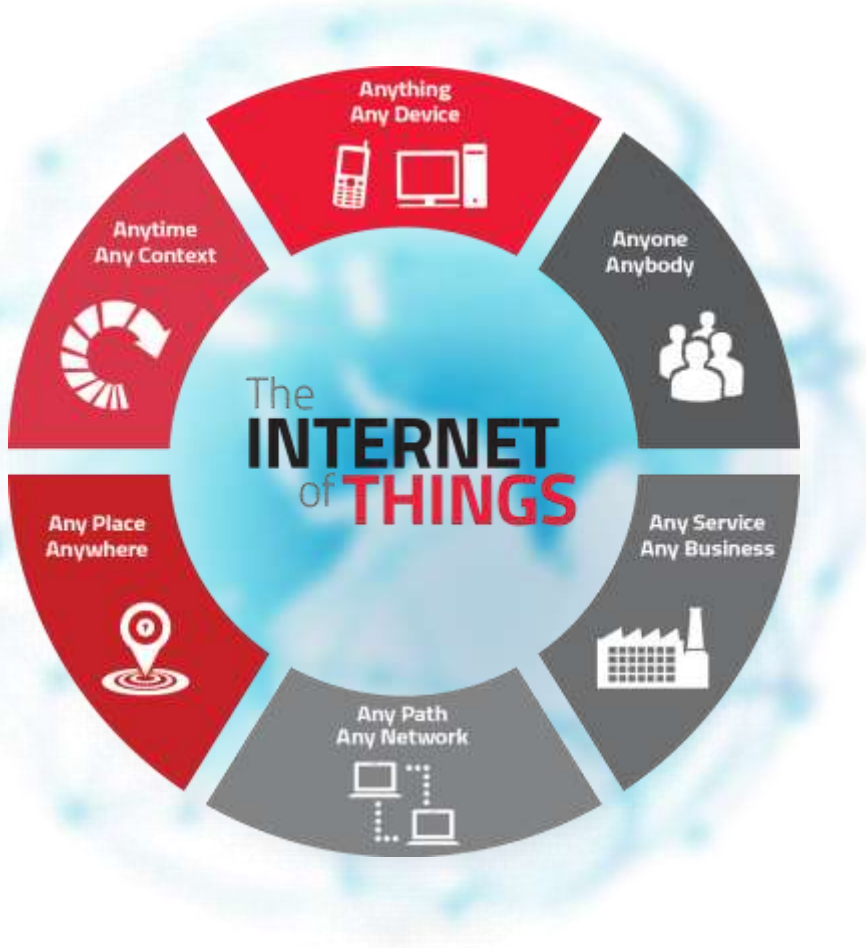
Oticon Opn™

The world's first internet-connected hearing aid

Jens Rosenstand
Director of Product Management

Internet of Things …

Of all the general technology trends that are taking place right now, perhaps the biggest one is the **Internet of Things (IoT)**



It’s probably the one technology to give us the most disruption as well as the most opportunity over the coming years.

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Virtually anything will be connected …

Oticon Opn™ – the world's first internet-connected hearing aid

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Imagine

That turning on the hearing aids starts the day

Imagine

Your hearing aids saying “someone is at the door”

Imagine

You can hear when baby starts to cry, from anywhere in the house

Imagine

Saying “TV” and… the TV turns on, the lights dim and streaming starts

Imagine

Your hearing aids saying “Garfield is home”

Imagine

That turning off the hearing aids ends the day

Opening up to hundreds of devices

> The network - If This Then That (IFTTT) gives users creative control over products they love

It's easy and simple to setup, and Oticon Opn™ can now be linked to the IFTTT network

Users can connect to and interact with an endless range of devices and services

PUT THE INTERNET TO WORK FOR YOU

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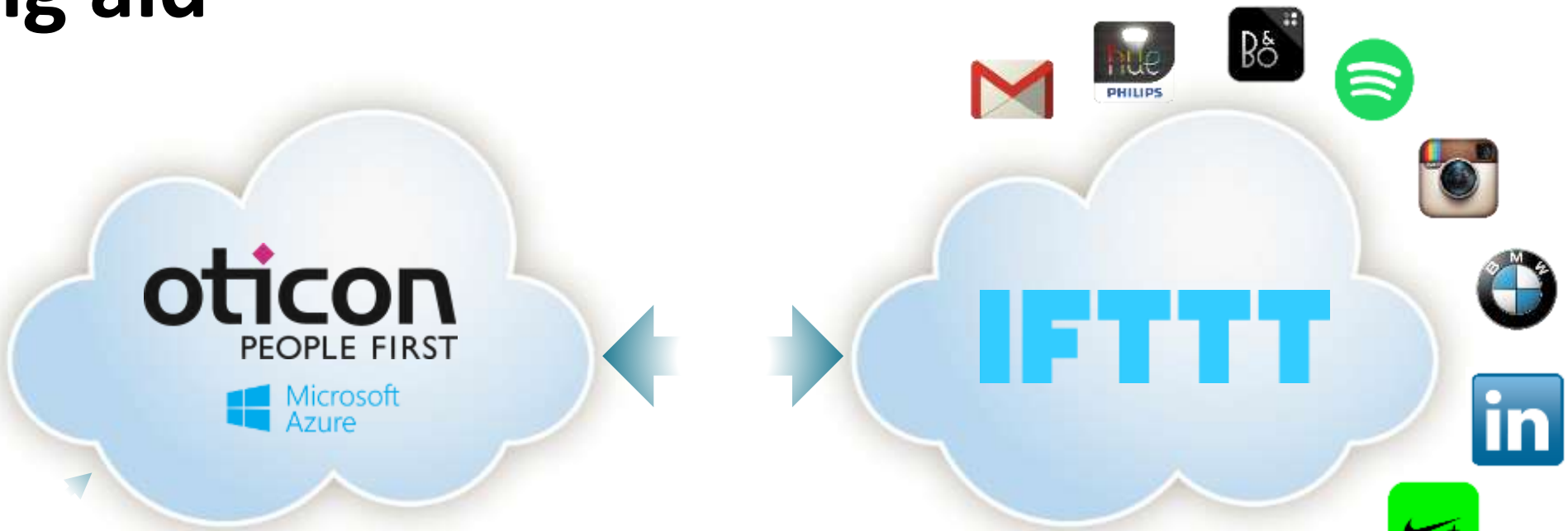
Oticon Opn™ - the world's first internet-connected hearing aid



We connect to more than **300** devices or services available

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Connectivity options are growing … every month …

Examples …

- Doorbell
- Coffee machine
- Light bulbs
- Motion and temperature sensors
- Security systems
- Music services
- Refrigerators, ovens, dish washer etc.
- Shopping services (Best Buy, Home Depot etc.)

Plus lots more …

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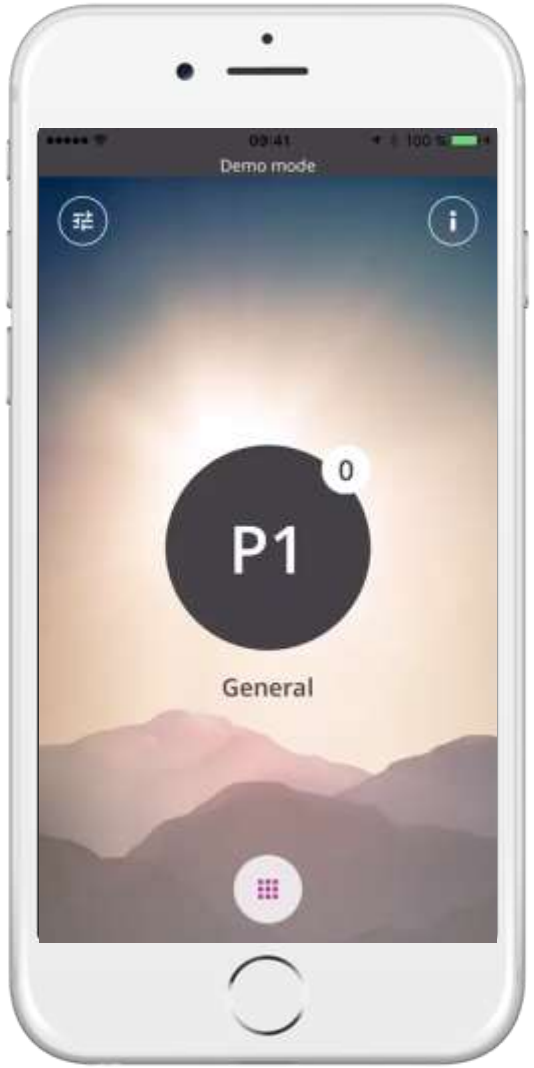
The ON app – to make it all complete

Modern, easy-to-use app for iPhone, Apple Watch and Android devices

One finger operation of volume up/down even without looking at the app

Fast! - everything reacts instantly

Fully integrated with IFTTT



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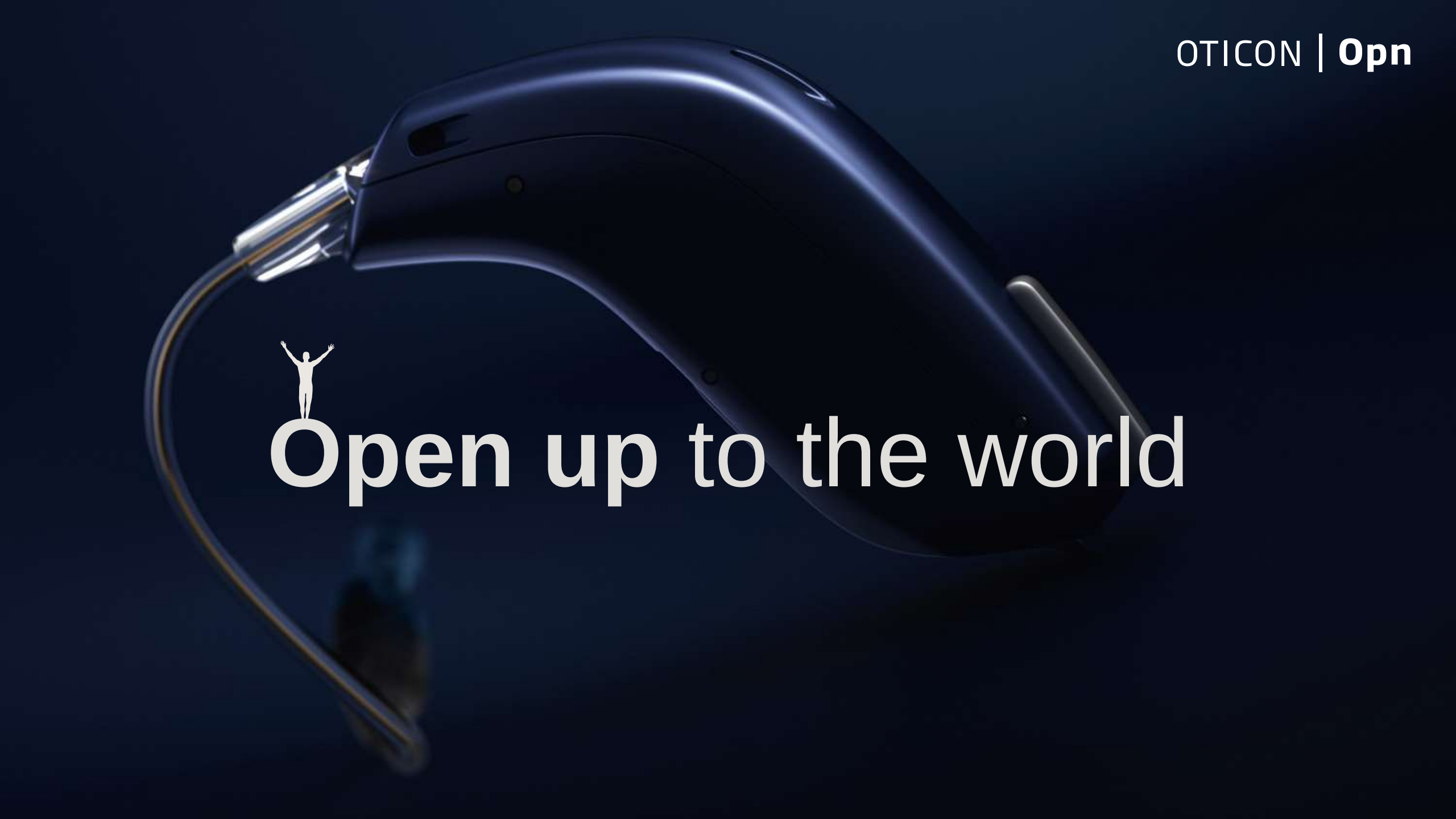
OTICON | Opn
Open up to the world

Hearing Implants

Oticon Medical Neuro

Designed for a future of sounds

- Active in 8 European markets
- No implant failures after implantation
- No hardware design errors detected in neither implant nor in BTE
- Excellent feedback from surgeons
- Good patient feedback – even though it still is early days
- New fitting software and firmware with improvements in fitting flow and usability released end of March

Oticon Medical CI

Pathways to grow the business

- New clinics in current markets
  - More than 25 CI clinics are planning to start with Neuro in 2016
  - Entered agreement on training activities with Hannover Medical University (MHH) in Germany – one of world's leading CI clinics
  - Expanding position in India (at this time on SP implant, awaiting Neuro registration)
- Starting up in new markets
  - Scandinavia (Neuro)
  - Asia (SP and Neuro)
  - Into new regions like the Middle East and 4 new markets in South America (SP and Neuro)
- Working on obtaining first local product clearances in China and North America

Bone-anchored hearing systems (BAHS)

Product offering significantly strengthened in 2015 and 2016

1. MIPS – a truly new perspective on tissue preservation
    - Has the potential to become the future industry standard surgical method
2. Ponto BHX implant
    - Is faster than expected replacing our classic implant
    - Fuels growth because of higher price
    - Several clinical studies in preparation with leading clinics to document benefits in compromised bone and in pediatrics
3. Abutment extender
    - Freedom of choice
    - No surgery
    - Seamless fit on existing abutment

Because sound matters

oticon MEDICAL

Outlook

Outlook 2016

The financial impact of the Oticon Opn™ was included in the already communicated FY 2016 guidance

We expect to see a market unit growth rate of 4-5% in the hearing aid market, which will however be partly offset by a decline in the market's average selling price due to continued mix changes and fierce competition. In terms of value, we expect to see a slightly positive market trend in 2016.

We expect to generate growth in sales in all the Group's three business activities: Hearing Devices, Hearing Implants and Diagnostic Instruments.

Based on exchange rates in early 2016 and including the impact of exchange rate hedging, we expect the exchange rate impact on revenue to be neutral in 2016. Acquisitions made in 2015 will impact consolidated revenue by approximately 6% in 2016.

In 2016, we plan to continue to buy back shares and complete the announced buy-back of shares in the amount of DKK 2.5-3.0 billion for the period from 2014 to 2016. From 2014 to 1 March 2016, the Company has bought back shares at a total price of DKK 1.64 billion.

All in all, we are guiding for an operating profit (EBIT) of DKK 2.0-2.3 billion

Q & A

Time for questions

Q&A

IR contacts

Investors and analysts are welcome to contact

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