

New challenges ahead for the hearing aid industry

Technological advancements empower the world to hear

In an increasing age of connectivity, the hearing aid industry is headed into new territory. Previously, to wear hearing aids was simply a mark of aging. Now hearing aids are smarter and, as a result, they are empowering.

At ReSound, we believe in sound quality. Hearing instruments should modify and transmit sound in a way which best resembles natural hearing, no matter how profound the loss. This philosophy initially led us to develop technologies which minimise ambient noise and emphasise voices. We are always focused on enhancing awareness of sounds, one's ability to pinpoint the location from where a sound originates.

Listening requires the ability to hear in multiple environments –crowded restaurants, quiet parks, on the phone, via speakers... the list goes on. Future hearing devices will perfect the ability to

transition through these scenarios unobtrusively, so wearers know only one thing: that whatever they're doing, wherever they are, they can always hear. Our 2.4 GHz and Made for iPhone technologies are fantastic steps toward direct and seamless connectivity, but there is much more we have in store for the future.

None of the above advancements matter if the hardware isn't attractive. At ReSound we work on optimising all aspects of the design, and we strive to always make the most cosmetically appealing product because we know it matters to our wearers. Going forward, we continue to work to miniaturise our devices so we can deliver the most technologically advanced yet discreet, attractive products available.

Peter Ulrik Scheel

Helping the brain make sense of sound

Oticon has introduced BrainHearing™ as an evidence-based approach to explaining how we develop hearing technology. This approach is built on the Eriksholm Research Center's active role and legacy in establishing cognitive hearing science together with leading researchers worldwide.

BrainHearing™ involves supporting the brain's central processing in making sense of sound. To support this, we see four key areas where technology development can facilitate brain processes by improving: advanced compression, personalising fitting, binaural processing capabilities and algorithms to help focus and reduce noise. Let me give a couple of examples how we see that develop.

Advanced compression balances audibility and comfort, while providing the brain access to speech details. To provide details, compression must limit distortion. Distortion inherent in various compression methods may be indistinguishable to the wearer, but

affects performance. Speech Guard utilises the best of both fast and slow amplitude compression to decrease distortion. Peer reviewed, independent research has demonstrated increased performance. (Pittman et al. 2014) We will continue to develop along these lines to provide the brain with more details.

Whenever environmental noise and reverberation or auditory system distortion occur, people with hearing impairment use more cognitive resources to decode what is said (Rönnberg et al 2013). We developed user personalisation to link cognition requirements with user needs and preferences to prescribe hearing aid fittings. This is only a first step from us. We will continue to develop even more personalised fitting to support how the brain understands in our new advances in technology.

Finn Möhring

Opening the market to provide a sound performance

There are increasing interactions between hearing instruments and other electronic devices used for communication or entertainment. This creates a higher complexity for the total system and requires more interactions between the two industries.

With every product release, hearing instruments will be able to cover a larger range of challenging listening situations and therefore being able to create a higher satisfaction rate. One good example is the further development of binaural features including

binaural beamforming.

Today's hearing instruments provide a sound performance that is able to satisfy all type of hearing losses, even mild which was not the case a few years ago. This gives us the opportunity to open the market and go after a much broader range of hearing impairment than in the past.

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