Disruptive technology in hearing aid industry

Chris Kyriakidis - GN Hearing A/S

September 2017
Agenda

- The hearing aid industry
- What do you mean “disruptive”
- The future of smart hearing is here
- Take home message
A glance at hearing aid market

### Hearing aid devices growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Devices (mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>13.9</td>
</tr>
<tr>
<td>16F</td>
<td>14.6</td>
</tr>
<tr>
<td>17F</td>
<td>15.3</td>
</tr>
<tr>
<td>18F</td>
<td>16.1</td>
</tr>
<tr>
<td>19F</td>
<td>16.9</td>
</tr>
<tr>
<td>2020F</td>
<td>17.7</td>
</tr>
</tbody>
</table>

Growth rate: 4.5-5.5% p.a.

### Degrees of hearing loss

<table>
<thead>
<tr>
<th>Degree</th>
<th>Sound level to be noticed (dB)</th>
<th>Users %</th>
<th>Non-users %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profound</td>
<td>90+</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Severe</td>
<td>71-90</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>Moderately severe</td>
<td>56-70</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Moderate</td>
<td>41-55</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Mild</td>
<td>25-40</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>No hearing loss</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

30 million Americans experience bilateral hearing loss, yet only around 14% use assistive hearing technologies.
Leading hearing aid companies

- Starkey
- William Demant
- Sonova
- Widex
- SiVantos
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The GN Group - disruptive for 148 years

**ESTABLISHED**

**1869**

"The development of the world is dependent on communications”

GN founder C.F. Tietgen, 1869

**CREATED THE FIRST TELEGRAPHIC CONNECTION BETWEEN CHINA AND THE REST OF THE WORLD**

**HEADQUARTERS IN DENMARK**

**5,500 EMPLOYEES**

Intelligent audio solutions that let you hear more, do more and be more than you ever thought possible

MARKETS HEARING AIDS & HEADSETS IN 100 COUNTRIES

RESEARCH CENTERS IN DENMARK, USA, HOLLAND AND CHINA

Some 10% of our revenue goes into research and development of new innovations

GN Making Life Sound Better
Disruptive by listening, challenging and transforming

<table>
<thead>
<tr>
<th>LISTEN</th>
<th>CHALLENGE</th>
<th>TRANSFORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>...to users</td>
<td>...ourselves</td>
<td>...ourselves</td>
</tr>
<tr>
<td>...to one another</td>
<td>...one another</td>
<td>...our industry</td>
</tr>
<tr>
<td>...to the market</td>
<td>...the status quo</td>
<td>...lives</td>
</tr>
</tbody>
</table>
When you are in conversation, you want to hear without doubt or confusion no matter the environment.

Recognizing speech whilst overcoming disruptions of noise and maintaining a sense of surrounding sounds requires intelligent and adaptive solutions.

World leading expertise in speech capture and processing becoming increasingly valuable in our modern voice-driven world.
We know sound

Specialists in **sound** and communications technology with 148 years of expertise

Deep understanding of high **quality** sound in all its forms - from conversation to music

Pioneering innovators of new sound experiences from wired to **wireless**
We understand hearing

The ear is unique – so is our approach to true wearable technology: **Hearables**

We understand the **diversity** of ear structure and the **complexity** of the human auditory system

We apply scientific research and our expertise in **engineering** and **audiology** to produce the most natural sound
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Launching 5th gen. 2.4 GHz and 3rd gen. binaural directionality

- Strongly improved sound quality
- Better situational awareness
- Better spatial hearing
- Better sound quality
- Ear-to-ear communication
- Situational awareness
- Improved speech recognition in noise

2.4 GHz technology development

1st generation
- ReSound Alera™

2nd generation
- ReSound Verso™

3rd generation
- ReSound LiNX™

4th generation
- ReSound LiNX2™

5th generation
- New Launch

2010

2012

2014

2015

2017

ReSound LiNX 3D™

5th generation
2.4 GHz

New Launch

1st generation
2nd generation
3rd generation
4th generation
5th generation
ReSound LiNX 3D – the future of smart hearing is here

- The ReSound LiNX 3D experience
- Excellent sound quality
- Improved fitting experience
- Unique remote fine-tuning

- 5th gen 2.4GHz wireless connectivity
- 3rd gen binaural directionality
- 3rd gen ReSound app
- 1st cloud based hearing solution
Video 1 – the ReSound LiNX 3D experience
Hearing Care Professionals and users feedback

“I loved my ReSound LiNX², they offered me more than I could ever have believed possible however I can now report ReSound LiNX 3D have exceeded my expectations and not just because of the ground breaking “Request Assistance” but because this smart hearing aid is providing much improved clarity of speech, crystal clear in fact, also improved connectivity provides excellent access to all number of iPhone apps audibly.”

– Molly Watt Trust, “ReSound LiNX² to ReSound LiNX 3D - user review”, UK

“I’ve been wearing a pair of GN's ReSound LiNX 3D hearing aids for about a month now, and I have to say I am more than happy with them. [...] The ReSound LiNX 3D have been easy to wear and has sounded completely natural. You really need to try these out. [...] The ReSound LiNX 3Ds fixed a problem that I never realised I had: being bothered and not understanding speech so well due to background noise. Now, my everyday environments just seem so much more peaceful and relaxed.”

– Steve Claridge, "ReSound LiNX 3D – user review", UK

“I heard noises I've never heard before; subtle sounds like birds chirping, paper clenching and floorboards creaking. The first few weeks I had them, I thought someone was following me because I was hearing all these new sounds. [...] These hearing aids have exceeded my expectations.”

– Leland Dingee – new ReSound LiNX 3D user, USA

I had to take a moment to write this email to you because my professional experience in fitting patients with the new 3D technology has been most impressive. I am aware that one product will not address each individual's unique hearing needs. But for the patients that I upgraded from LS to 3D have sung its praises. The positive - more accurately - glowing responses from my patients have been almost immediate! I have even received emails after they went home and wore it for a few days reiterating their first impressions. It was evident that ReSound 3D technology had unearthed what many have asked for - more clarity, better speech in noise and spatial sense. So to all of your researchers and developers...Bravo!

– Dr. Norma R Mraz – MRAZ Audiology Consulting

"They are just really fantastic, and they are just helping me unbelievably. My previous hearing aids were from another manufacturer, and these just blow them away!"

– Christine Possi – new ReSound LiNX 3D user, USA
Technology that adapts to your lifestyle
Today’s smartest brands and products are breaking down traditional categories to enhance a wider range of lifestyles and more lives than ever.
Video 2 – testimonial from a user
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For you who cares about sound and has a hearing loss

Smart Hearing aids are medical devices. They are also advanced consumer electronics that help optimize your life and your sound.

GN makes life sound better with quality sound equipment for whatever you do and wherever you are in life.
It is our promise and our privilege to partner with dedicated hearing care professionals.

Together we can transform the lives of people with hearing loss.
The end of disruption – evolution and leadership

- Cloud based remote fine-tuning: World’s first (2017)
- Made for iPhone (MFi): World’s first (2013)
- 2.4 GHz wireless connectivity: World’s first (2010)