

HEARABLES: PSAPS AND HEARING AIDS

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FTC WORKSHOP, "NOW HEAR THIS"
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Objectives:

Clarify terminology

Debunk some common assumptions:

If it's not a hearing aid it:

- 1) is technologically inferior
- 2) cannot incorporate all the "features" high-end hearing aids do
- 3) cannot do the same things hearing aids do because it's for normally hearing people



Definitions:

“A hearing aid is a wearable sound-amplifying device that is *intended to compensate for impaired hearing*.”

“A Personal Sound Amplifying Products (PSAP) is a wearable electronic product that is *not intended to compensate for impaired hearing*.”



May be physically and electronically exact same devices.
FDA makes the distinction on **intended use**, which is signaled via advertising and labeling.

In US markets, same (medical) devices sometimes offered for sale as hearing aids or PSAPs!

What about consumer devices: “Hearables?”

Hearable = “anything that fits in or on an ear that contains a wireless link, whether that’s for audio, or remote control of audio augmentation” (Nick Hunn, 2016)

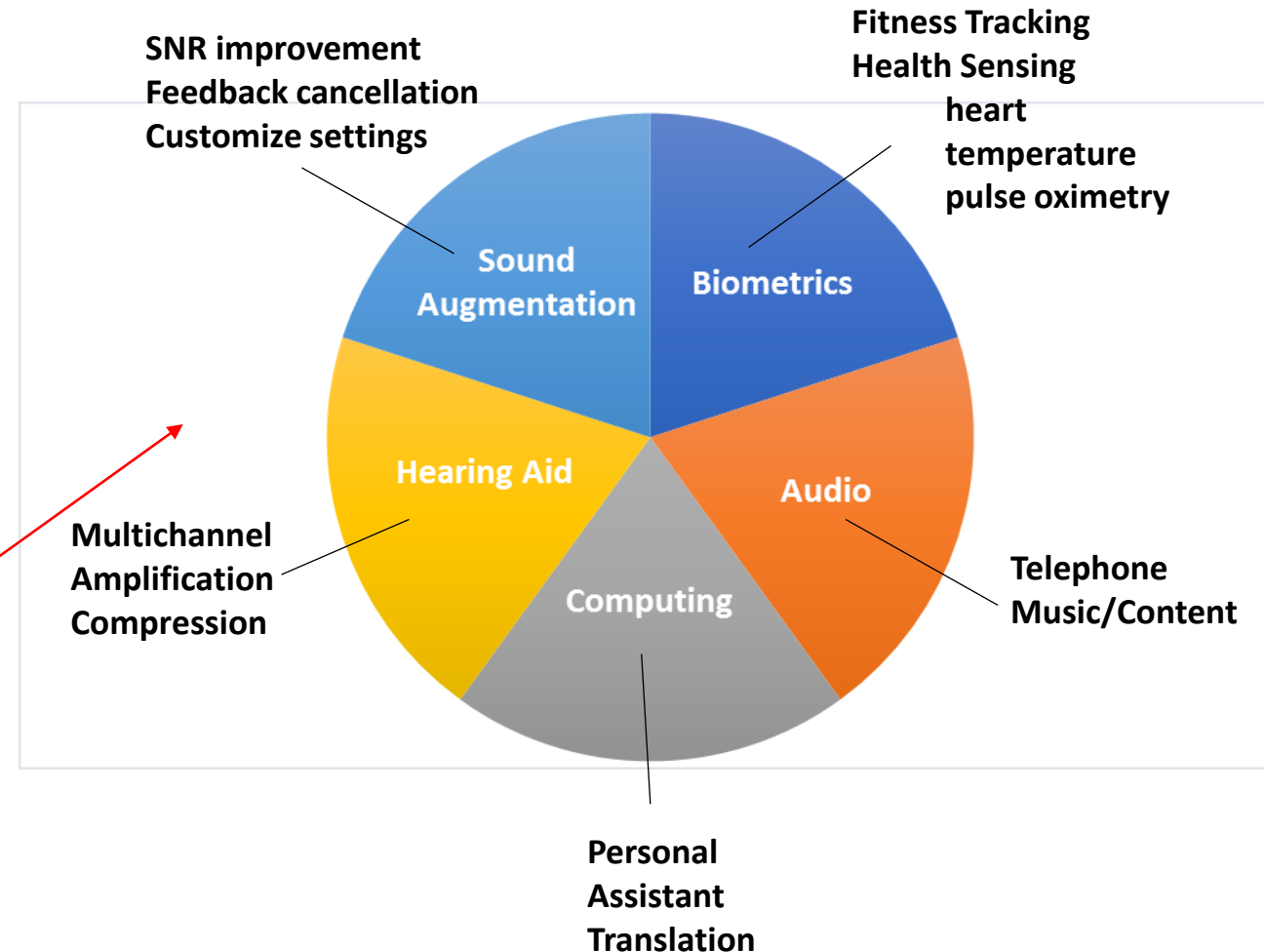
Hearable.World (2016):

Hearable Devices include:

- Wireless Health Trackers
- Wireless Earphones
- Wireless PSAPs
- Wireless Hearing Aids
- Wireless Assistants

But devices are already multi-functional

Hearables Function Domains:



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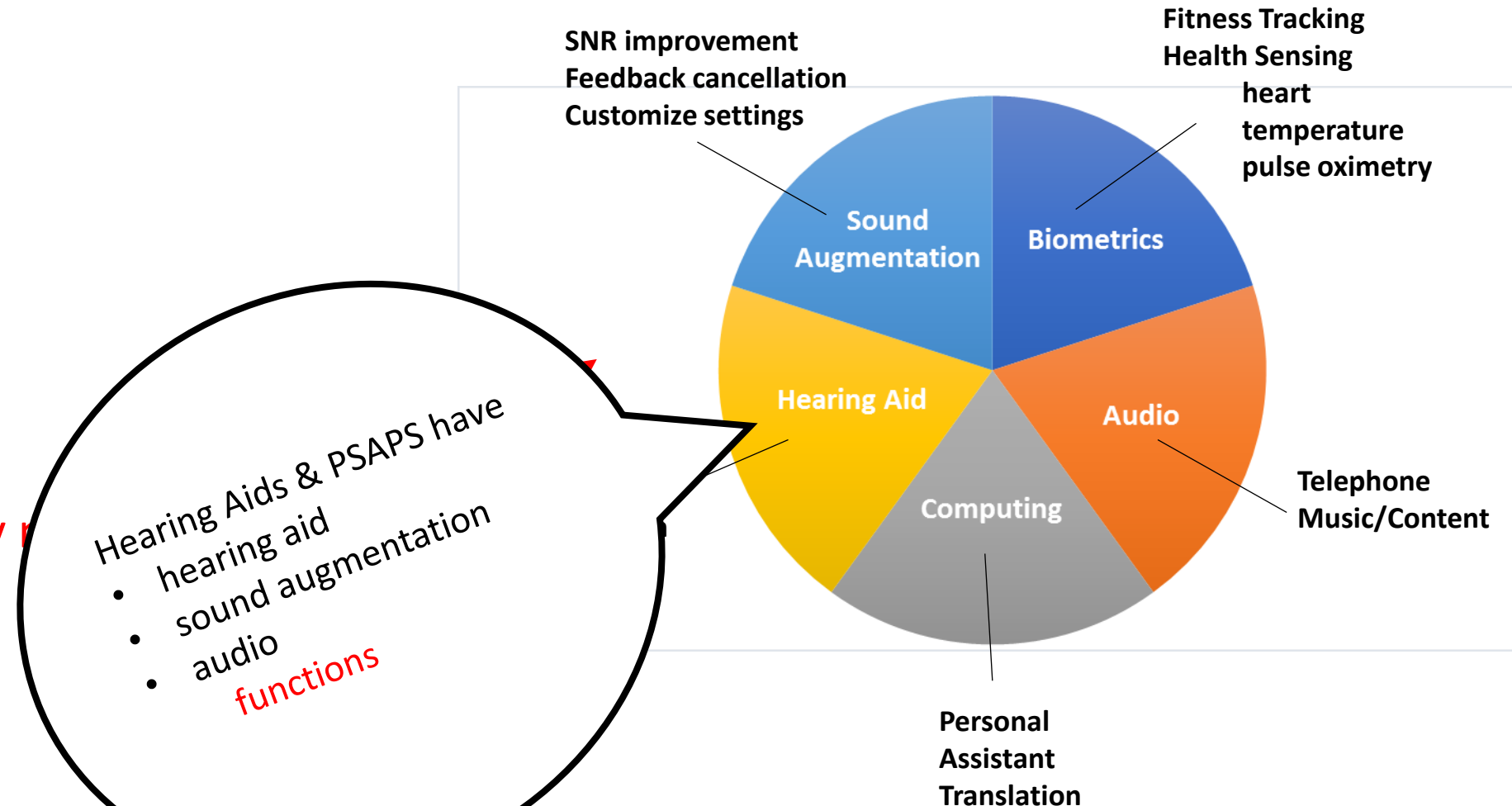
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Hearing Aids & PSAPs have

- hearing aid
- sound augmentation
- audio

functions

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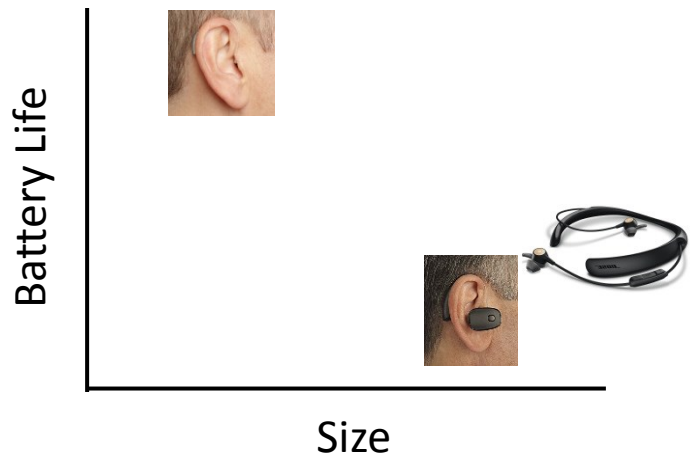


Audio Functions: same for normal and impaired hearing

<i>Desired Function</i>	Wireless Hearing Aids	Wireless PSAPs
<i>“Hearing Aid” Functions</i>		
Make soft sounds louder without making loud sounds louder	Compression amplification	Compression amplification
Customize frequency response	Multichannel signal processing	Multichannel signal processing
Wireless programming and remote control	Bluetooth	Bluetooth Self-Fitting apps that exploit smartphone computing power
<i>Sound Augmentation Functions</i>		
Improve SNR and listening comfort	Multiple microphone signal processing Noise reduction	Multiple microphone signal processing Noise reduction Active noise cancellation technologies
Cancel feedback	Active feedback cancellation	Active feedback cancellation
<i>Audio Functions</i>		
Audio streaming (telephone and content)	Bluetooth	Bluetooth Wider bandwidth, better audio quality

Wireless Hearing Aids and Wireless PSAPs: How Are They Different Today?

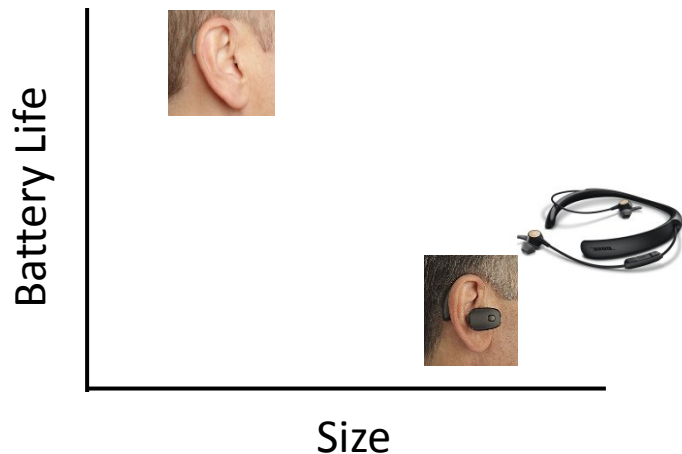
Consumer (PSAPs)	Medical (Hearing Aids)
Customization	
Consumer customizes to own needs (presets, smart apps)	Licensed professional customizes using manufacturer programming software
Sales Channels	
Consumer outlets (Big Box stores, other retail, internet)	Licensed dispensers only (clinics, dispenser offices, Costco)
Price	
Consumer pricing and competition (\$300-\$500)	Regulated channels drive up price (\$1000-\$3000)
Regulation	
Protections for consumer products (warranties, advertising)	Regulated by FDA as medical devices



- **Wireless Hearing Aids = small, low-power**
 - Customers demand invisibility, long battery life
 - Trade-off = audio quality, additional hearable functions
- **Wireless PSAPs = larger, shorter battery life**
 - More room for sensors
 - Better audio quality

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But only for now!

Summary:

- ***Distinction between PSAPs and Hearing Aids is regulatory***
 - PSAPs and hearing aids can incorporate same technologies and perform same amplification/augmentation functions
 - PSAPs are consumer products and can be sold at consumer prices in consumer channels
- ***Wireless PSAPs and Wireless Hearing Aids are subsets of Hearables***
 - Rapid innovation in CE products is happening; amplification and augmentation are already features of multi-functional Hearable products
 - Regulatory barriers are preventing companies from entering the CE market with clearly-messaged Hearables for people with hearing loss