



# **The implications of non-acoustic factors for airport communication and engagement**

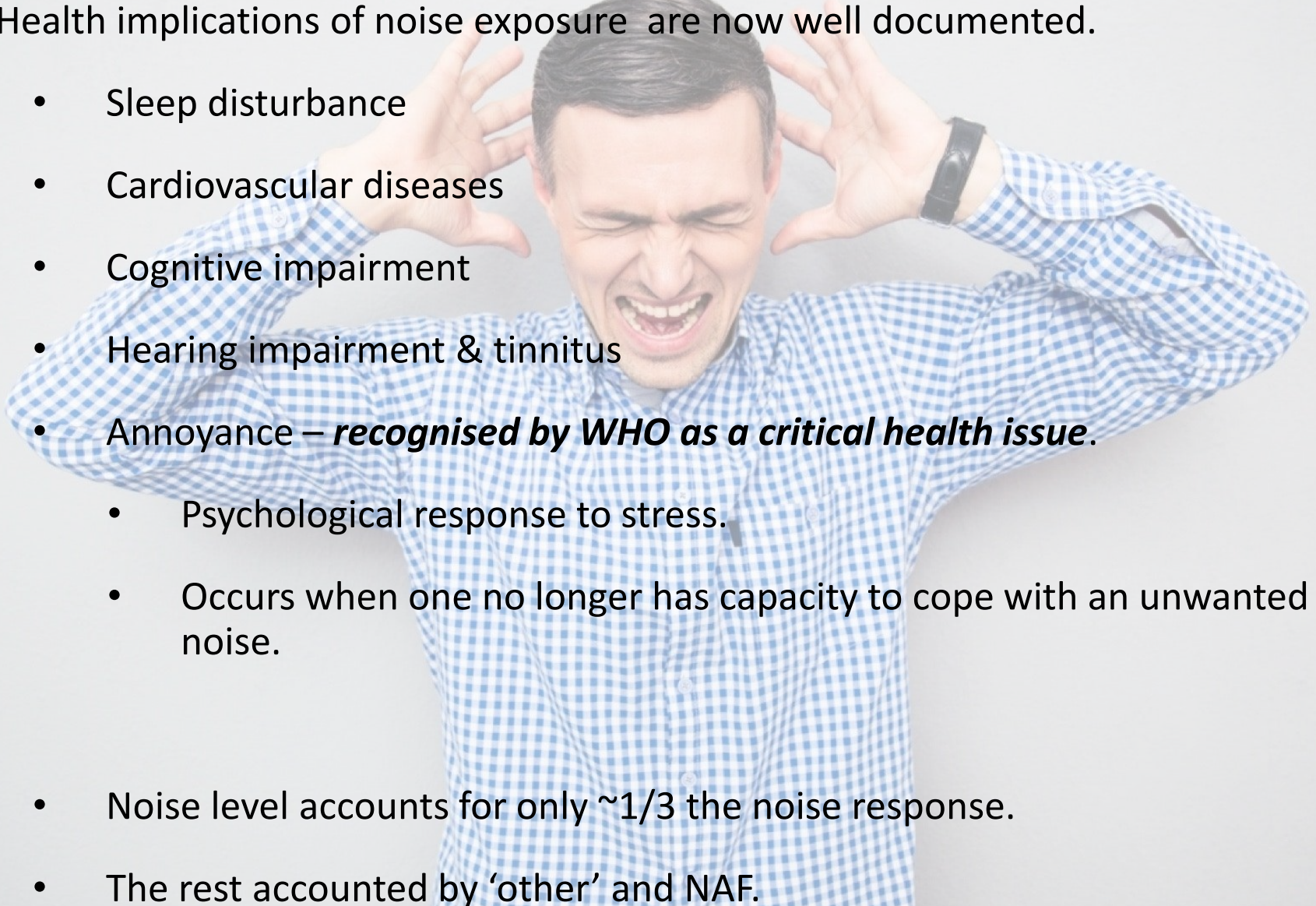
**ANE Symposium 2020**

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# The Problem

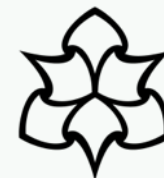
- Health implications of noise exposure are now well documented.
    - Sleep disturbance
    - Cardiovascular diseases
    - Cognitive impairment
    - Hearing impairment & tinnitus
    - Annoyance – ***recognised by WHO as a critical health issue.***
      - Psychological response to stress.
      - Occurs when one no longer has capacity to cope with an unwanted noise.
  - Noise level accounts for only  $\sim 1/3$  the noise response.
  - The rest accounted by 'other' and NAF.
- 



# Comprehensive approach to noise management should...

- Continue to drive down noise exposure by all means reasonable (ICAO Balanced Approach)
- Address non-acoustic factors (NAFs) directly. Raises questions:
  - What are the most significant NAFs and which are potentially modifiable?
  - How might NAFs be influenced positively?
  - What is the nature of interventions designed to address NAFs?
  - How might their effectiveness be evaluated? => enhanced practice over time.

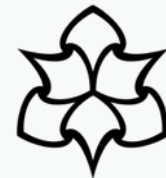




# Non-Acoustic Factors

- A Vader (2007) identified 31 NAFs able to influence noise impact, categorised by their strength as an indicator and the extent to which they could be modified by an airport.
- 7 NAFs identified as **modifiable** and playing a **strong role** in the response to noise.

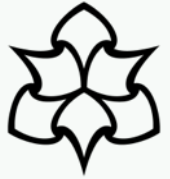
Non Acoustical Factors	Strong	Intermediate	Weak
<b>Modifiable</b>	<ul style="list-style-type: none"> <li>• Attitude towards the source</li> <li>• Choice in insulation</li> <li>• Choice in compensation (personal)</li> <li>• Influence, voice (the opportunity to exert influence on behaviour of source)</li> <li>• Perceived control</li> <li>• Recognition of concern</li> <li>• Trust</li> </ul>	<ul style="list-style-type: none"> <li>• Avoidability</li> <li>• Choice in compensation (societal)</li> <li>• Expectations regarding future of source</li> <li>• Information (accessibility and transparency).</li> <li>• Predictability of noise situation</li> <li>• Procedural fairness</li> </ul>	<ul style="list-style-type: none"> <li>• Media coverage and heightened awareness to noise</li> <li>• Social Status</li> </ul>
<b>Not modifiable</b>	<ul style="list-style-type: none"> <li>• Age (under 55)</li> <li>• Income</li> <li>• Individual sensitivity to noise</li> <li>• Past experience with source</li> </ul>	<ul style="list-style-type: none"> <li>• Duration of residency near airport</li> <li>• Fear related to source of noise</li> <li>• Home ownership (fear of devaluation)</li> <li>• Use of airport services</li> </ul>	<ul style="list-style-type: none"> <li>• Age (above 55)</li> <li>• Awareness of negative consequences (health, learning)</li> <li>• Children</li> <li>• Education</li> </ul>
<b>Unsure/ need to be examined</b>	<ul style="list-style-type: none"> <li>• Conviction that noise could be reduced or avoided by others</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits from airport (personal, societal)</li> <li>• Cross cultural differences</li> <li>• Country of origin</li> </ul>	



# Non-Acoustic Factors

- Strong and modifiable NAFs can be influenced by through airport-community dialogues
- Airports (and other aviation authorities) are essentially in a negotiation with communities for a ‘license to operate’.
- As well as annoyance, NAFs can influence the ‘acceptability’ of noise – perhaps more relevant to airport policy?
- All this implies a key role for communication and engagement (acknowledged by all aviation actors).

**What does the theory say?**



# What we did

- A thorough review of the literature surrounding effective communication, engagement.
  - Leading to concepts such as:
    - Public participation.
    - Social Learning
    - Ideal Speech
- Added to learnings from a science and communication summer school, and discussions on the subject with experts who specialise in the field.



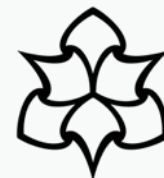
# Co-Creation & Collaboration

- THE key current trend in good communication (and research) is co-creation.
- This implies industry stakeholders working together and with their communities to develop a mutual understanding of local needs, experiences, expertise.
- This means, co-creating outcomes, methods and results.



- Citizen Control is desirable.
- But airports remain profit making firms, with strict legislative controls.
- How high is it feasible to go?





# Conditions for 'Ideal Speech'

- Communication and engagement is more effective when:
- Led by an independent voice
- Where hierarchies are levelled.
- Underpinned by a 'common language' that is comprehensible to all.

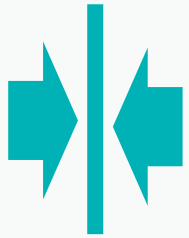
Fairness	Competence
Anyone may participate	Minimal standards for cognitive and lingual competence
Assert validity claims	Access the knowledge
Challenge validity claims	Consensually-approved translation scheme
Influence final determinations of validity	Most reliable methodological techniques available



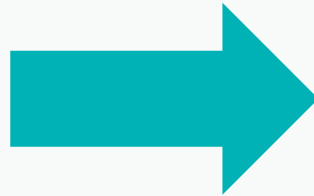
**For this to happen we need to  
move from the traditional...**



# The Public Understanding of Science 'The Deficit Model'



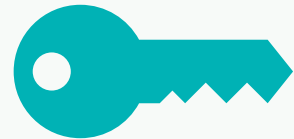
Narrow  
scope



One Way



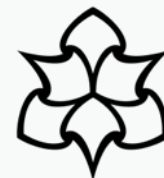
Scientists as  
expert



Scientists  
owning data



**To....**

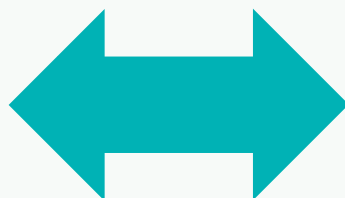


# Public Engagement with Science and Technology



## Wide Scope

Qualitative non-expert can inform and deliver on outputs.



## Two Way

Discussions take place with empathy and based on mutually agreed objectives.



## Levelled hierarchies

Stakeholders have valid expertise to be shared. Consensus can be reached.



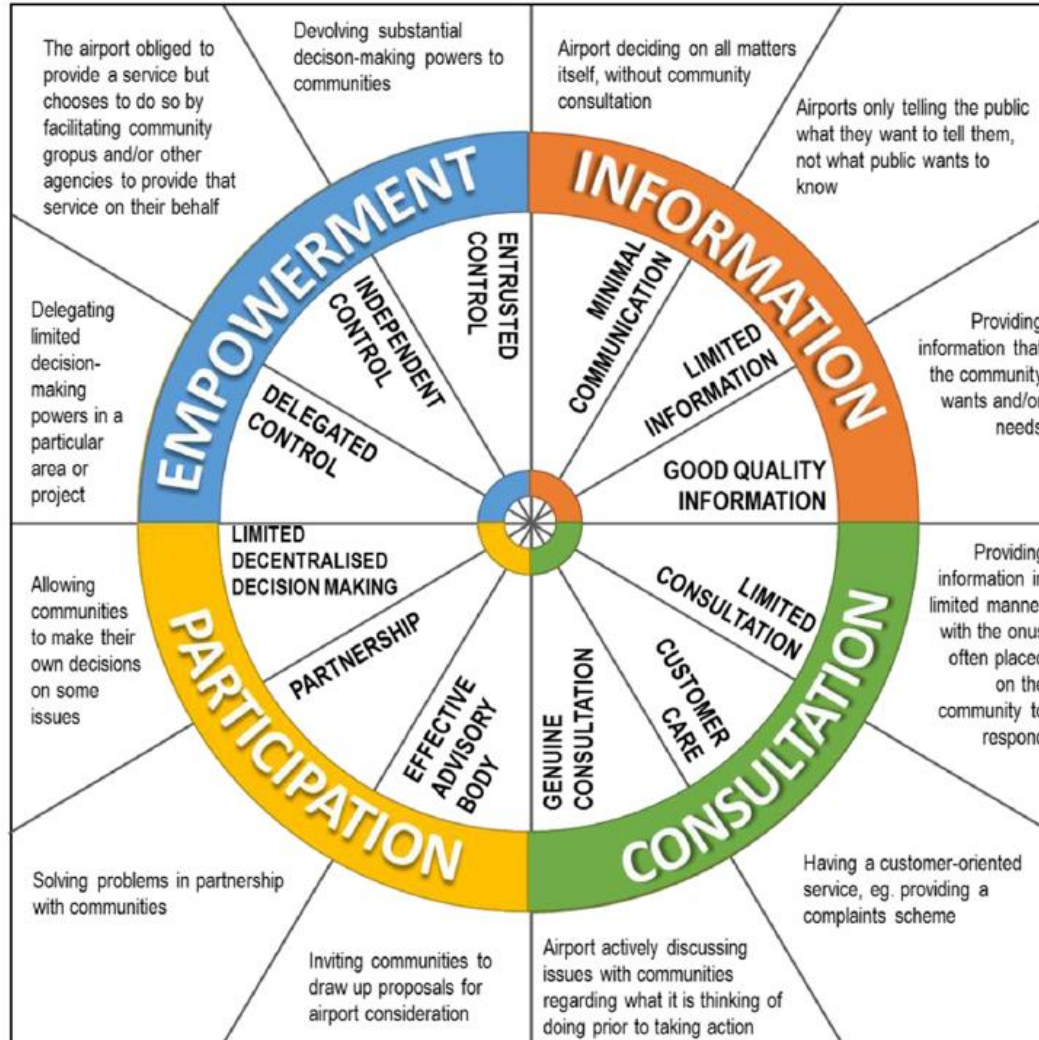
## Data owned by society

Available to all and fully transparent.



# Wheel of Participation

as amended by  
Asensio et al. (2017)







# Conditions to foster ‘fair conditions’ for dialogue include

- opportunities to participate in the decision-making process
- taking into account the opinions of all parties
- absence of bias in authorities (motivations trusted)
- treating people with dignity and respect
- access to relevant and accurate information
- clear and appropriate information about the process and decision-making
- consistent application of procedures across people and time



# Not easy an easy task!

- Many airports are making valiant efforts to engage with their communities – if these are to be built on then there is need for *systematic evaluation* of these experiences such that practice can be enhanced over time

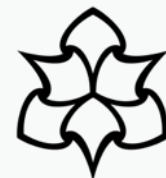




# Assessing impact

- Communication and engagement practitioners emphasise the importance of evaluation highlighting that as a minimum this should include:
  - Pre-Evaluation: to establish a baseline, and to inform on the intervention.
  - Post-Evaluation: to determine success and provide an evidence base for future interventions.
- Evaluation should be informed by stakeholders:
  - What is important to them?
  - What do they want to know?
  - What outcomes do they desire and how might these be tracked?
- This may mean extending the vision beyond traditional noise management agendas (contributions to QoL)





# On-going challenges/issues

- Who should be the focus of communication and engagement efforts (the motivated few, the ‘silent majority’, community representatives, etc.)?
- What issues need to be covered and how might they be presented in a form that is comprehensible to the target audience (noise presents particular challenges here!)
- How do we engage with communities on an on-going basis when enthusiasm for engagement may be low
- How might the ‘benefits’ of communication and engagement be disseminated beyond those immediately involved in the process
- Developing a consensus view on what ‘success looks like’ may require collecting new data, using different techniques to those traditionally employed in noise management interventions



# Questions?

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- ANIMA website can be found at <http://anima-project.eu/>



Horizon 2020