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# Competence and fairness - essential elements in noise impact mitigation

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Session 4: Aircraft Noise and Annoyance – when non-acoustic  
factors drive out of the box thinking





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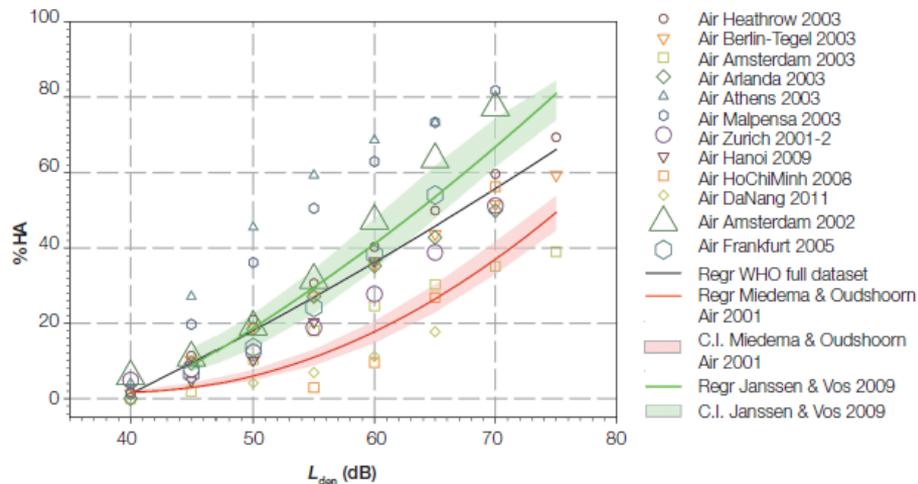
# Annoyance and health

- Most recent WHO review and further work undertaken as part of ANIMA highlights the importance of sleep disturbance and annoyance as mediators of key health outcomes
- Comprehensive approach to noise impact mitigation should address sleep disturbance and annoyance directly



# What do we know about annoyance?

- Trends in exposure-response relationships suggests increasing sensitivity
- Exposure only measured using one metric
- Changing noise environment
- Statistical analysis indicates noise level explains about a third of annoyance
- Remaining two thirds “non-acoustic factors” (NAF) or unknown
- Reducing noise may not reduce annoyance





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# What should a responsible airport do?

- Continue to support reduction of noise at source
- Manage down noise exposure through LUP, operational improvements and operating restrictions where necessary
- Address non-acoustic factors directly as part of a comprehensive approach to noise impact mitigation



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</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>	





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<b>Not modifiable</b>			<ul style="list-style-type: none"> <li>• Consequences of negative consequences (health, learning)</li> <li>• Children</li> <li>• Education</li> </ul>
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Best addressed through measures of communication and engagement.





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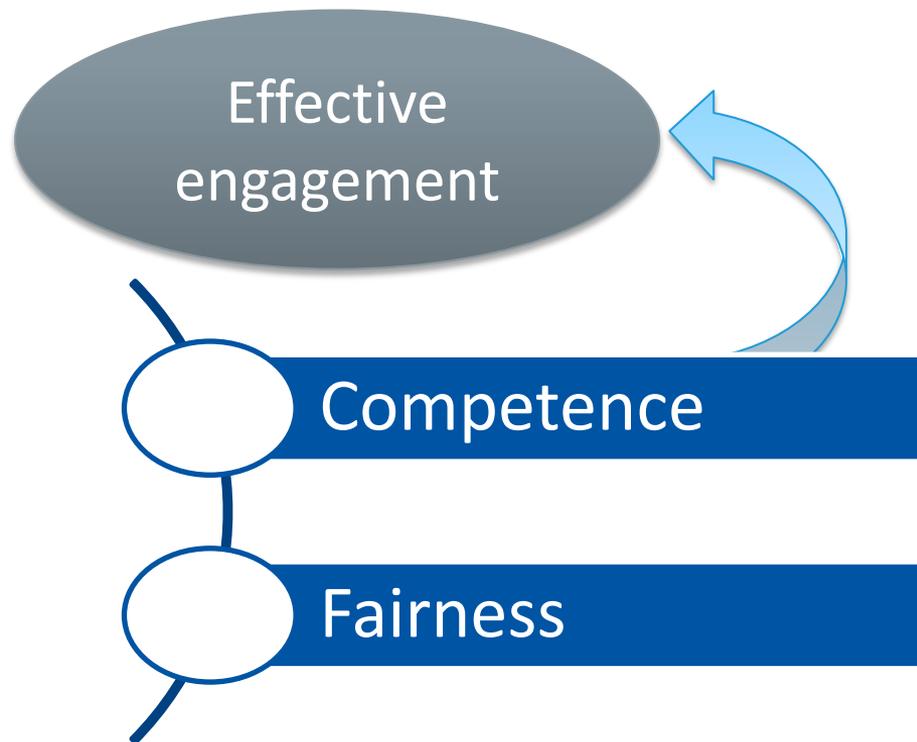
# Messages so far!

- Non-acoustic factors (NAF) need to be addressed as part of a comprehensive response to noise impact mitigation
- Most influential and modifiable NAF require effective communication and engagement
- Engagement must be meaningful, consistent and comprehensive (cover both positive and negative airport contributions to quality of life)
- Essentially a negotiation over 'license to operate'



## What does theory say about effective engagement?

- **Competence**
  - Share a ‘common language’
  - understand issues
  - Access to expertise
- **Fairness**
  - Processes should be inclusive, transparent
  - Able to challenge evidence





## What does theory say about effective engagement?

- Individuals should be 'competent' to participate

- Share a 'common language'
- Have access to expertise
- Be able to challenge

The underlying assumption is that all this **increases the perceived control,** which is expected to be an **important (inhibitory) element of noise annoyance.**

Effective engagement





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# Implications

- Communication needs to facilitate understanding – supplementary noise indicators have a role but risk of information overload
- By focusing on the **process** by which
  - change is **designed**,
  - **decisions** are made on options,
  - procedures are **implemented** and
  - appropriate **monitoring regimes** determined,more socially acceptable outcomes should arise that may have **beneficial impacts on tolerance/annoyance levels**



## ICAO Balanced Approach - Airport Implementation

### Communication and Engagement

**Process:**

- 1) Identification of the need for change.
- 2) Design of intervention options.
- 3) Selection of most appropriate intervention.
- 4) Implementation of chosen intervention.
- 5) Post-Implementation evaluation (including impacts on resident Quality of Life).

Land-Use Planning

Operational Procedures

Operating Restrictions



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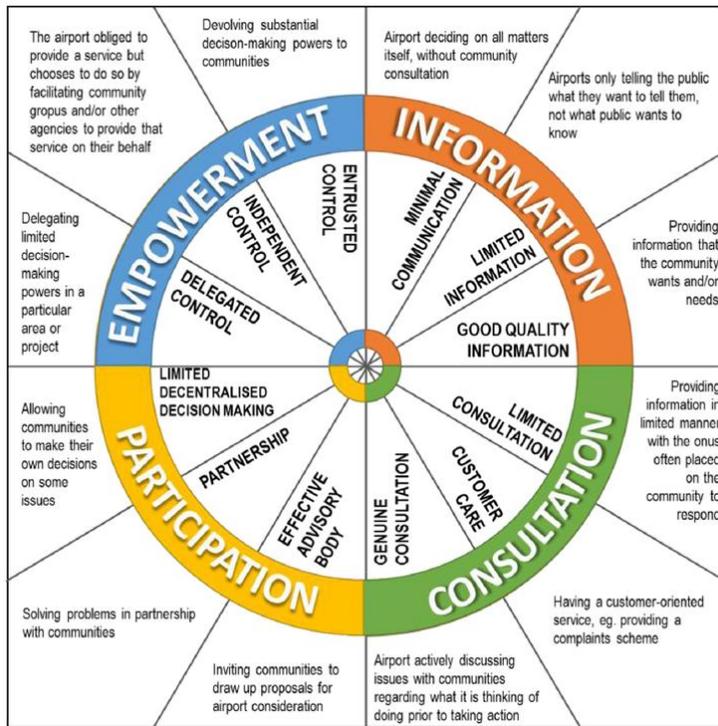
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# Challenges

- Anecdotal evidence suggests that attitudes can be influenced positively, but costly and time consuming
- Dearth of systematic evaluation of the impact of enhanced communication and engagement on acceptability of outcomes/QoL
- Airports have to be prepared to empower communities
- How to deal with 'winners' and 'losers'
- Arguably requires a more fundamental discussion over the agreed principles by which airports should manage their impacts (both positive and negative).
- Wider consequences of Balanced Approach and other interventions need to be explored and evaluated (what does QoL mean and how can impacts be tracked?)

# Wheel of Participation (Acensio et al, 2017)





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# Research Priorities

- Understand the ‘value’ of Balanced Approach interventions – impact on attitudes, QoL etc.
- Assess the potential contribution of communication and engagement activities to influencing non-acoustic factors and the acceptability of outcomes



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# Aviation Noise Impact Management through Novel Approaches

• Oct 2017- Sep 2021

• €7.5M

• 22 partners – airports, universities, research centres, Airbus

• <http://anima-project.eu/>

## • Targeted outcomes

- Approaches and tools to mitigate noise and impacts
- Best practices in noise management and what is valued by communities
- Gaps in knowledge re improving QoL
- Reducing community impacts such as annoyance
- EU practical and policy impacts
- What benefits for airports and communities

## • Deliverables completed to date

- Review of noise reduction strategies
- Recommendations on Noise and Health
- Gaps in QoL data
- Scientific workshop report



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**ANY QUESTIONS?**



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