AIRPORT REGIONS CONFERENCE

Airport Noise Mitigation Tools

European Observatory on airport capacity - TF1 meeting

Brussels, 12 Dec. 2014

Pascal Garreau

The issue: A solution must be found

« Aircraft noise is often the main obstruction to obtaining permission to grow »

Angela Gittens, Director General, ACI World, ICAO Air Transport Sympasium, 18 April 2012

Overview of the tools : The « balanced approach »

Reduction of noise at source

-Significant noise reductions thanks to new technologies
- New ICAO noise standards (Ch.4) have recently come into operation

Land use planning and management

- Planning (zoning, easement,etc.)
- Mitigation (building codes, insulation)

Noise abatement procedures

- Noise preferential routes/runways
- Displaced thresholds
- SID and RNAV procedures
- Reduced power/drag and CDO
- Limited engine ground running

Operating restrictions

NB: Not to be used as a first resort, only after consideration of benefits gained from other 3 elements
- Movement caps
- Noise quotas
- Curfews

The set of tools we have analysed

Noise monitoring, Information and Mediation

Land use planning and management

Abatement operational procedures

Operating restrictions

Market-based measures

Our set of airports

Size (in 2013 PAX):

- > 50M
- 25 – 50M
- < 25M

Methodological disclaimer

- We used publicly available information

- The information gathered are « rough » and could be incomplete

- We tried to simplify a complex reality

- But, the Devil is hidden in the details

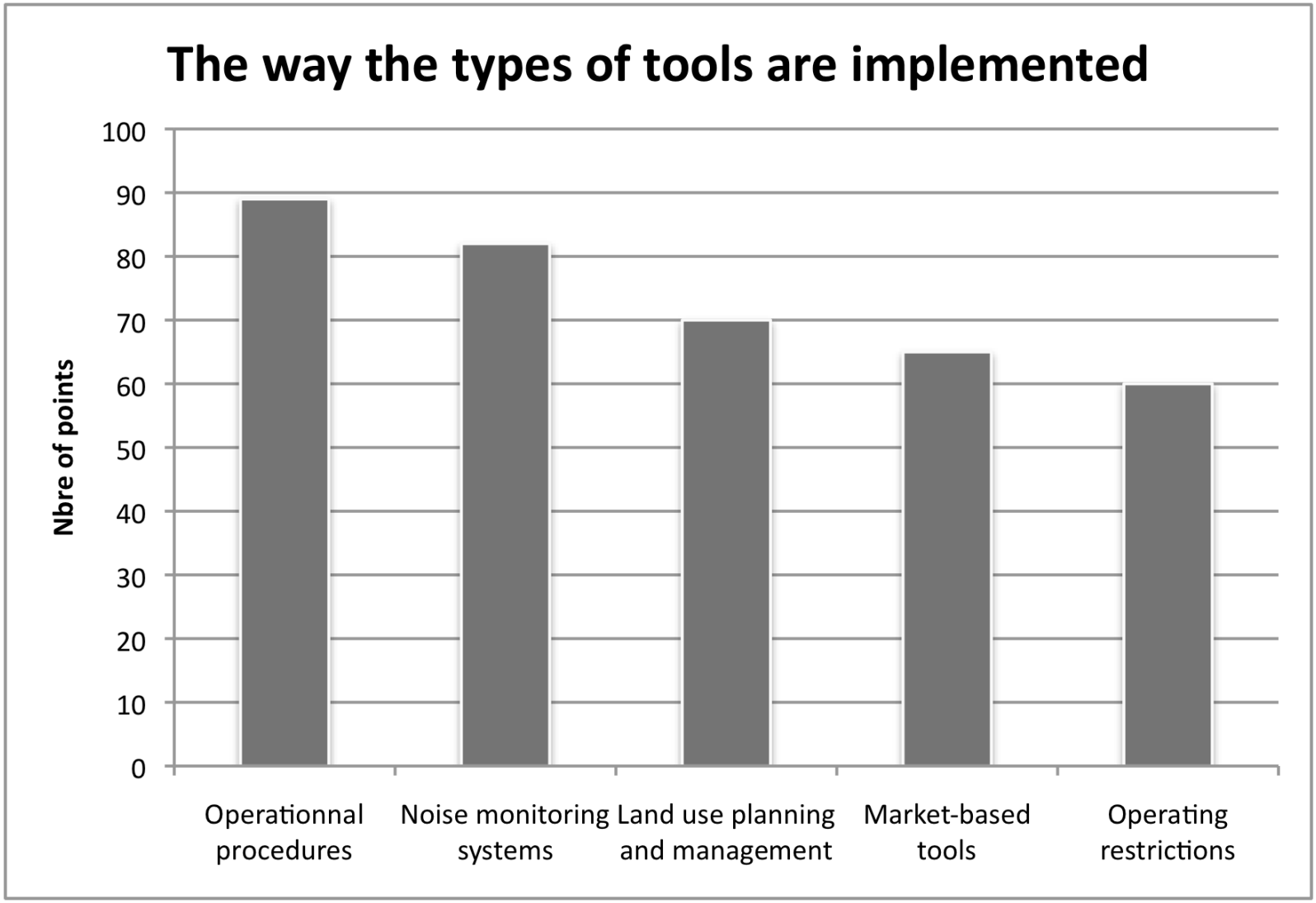
Analysis of the results (1/5)

	Noise monitoring systems		Land use planning and management		Operationnal procedures		Operating restrictions		Market-based tools	
	Noise monitoring	Info & Mediation with stakehold.	Building restrictions	Passive protection	Flight procedures	Ground noise related measures	Max number of movmnts / Noise cap	Traffic restrictions	Noise related charges	Fines
Criteria										
X		Few initiatives	Few initiatives	Few initiatives	Few initiatives	Few initiatives	Few initiatives	Few initiatives	Few initiatives	Few initiatives
XX		Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed	Some tools are proposed
XXX		Large access to informations and strong involvment of the stakeholders	There are restrictions and they are respected	Grants are avalable to insulate houses. Repurshasing is proposed.	Use of runways & trajectories are designed in order to mitigate the noise and protect the population.	Various tools are implemented. There are some controls	There a cap on movements or noise	Some types of aircraft are baned (exceeding the international regulations) or there is a curfew.	Charges are modulated dur to the aircraft noise levels	Disrespect of rules can be fined and fines ar effectively implemented

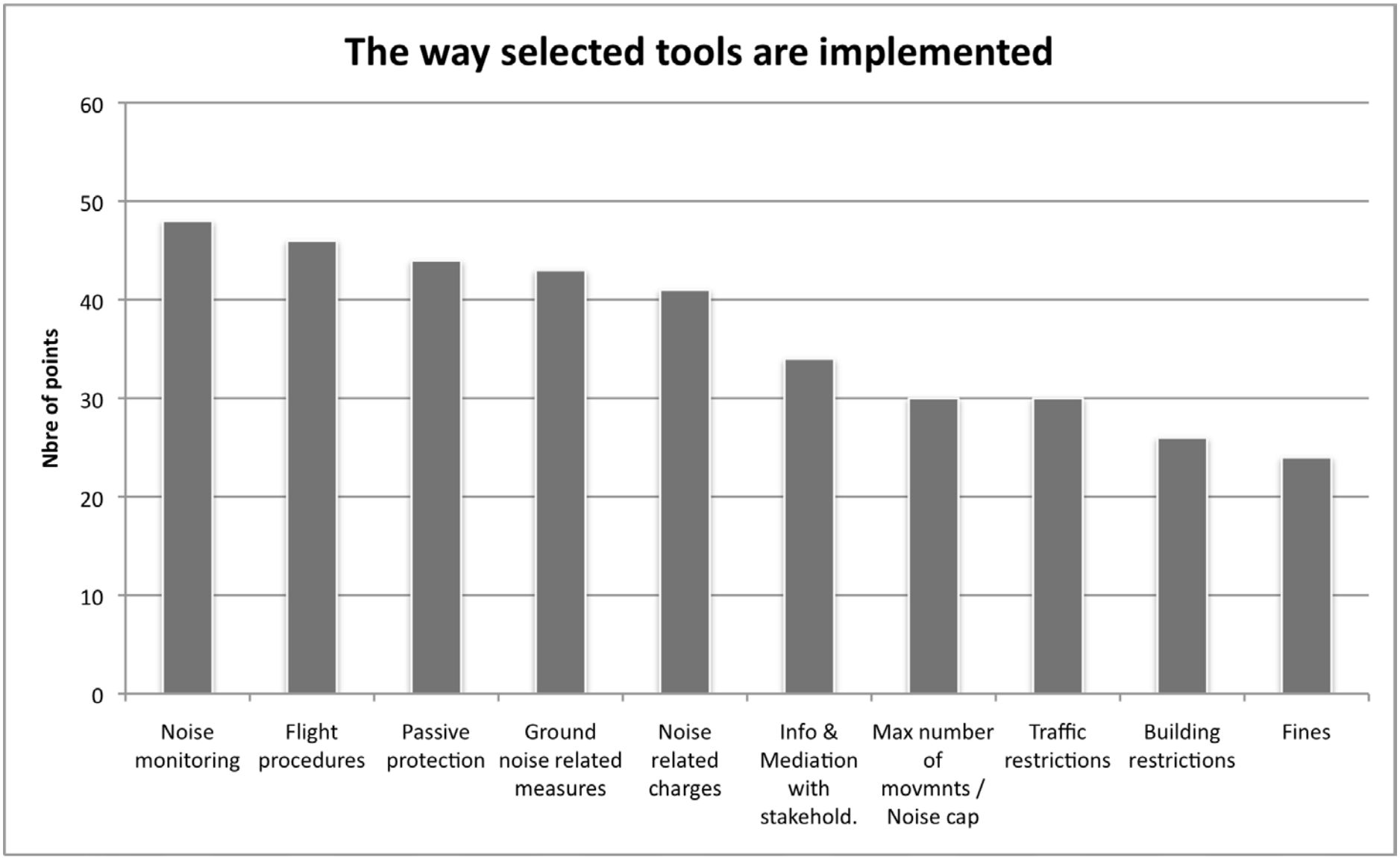
Analysis of the results (2/5)

	Noise monitoring systems		Land use planning and management		Operationnal procedures		Operating restrictions		Market-based tools	
	Noise monitoring	Info & Mediation with stakehold.	Building restrictions	Passive protection	Flight procedures	Ground noise related measures	Max number of movmnts / Noise cap	Traffic restrictions	Noise related charges	Fines
AMS	XXX	XXX	XXX	XXX	XXX	XX	XXX	XX	XXX	X
BCN	XXX	X	X	XX	XXX	XXX	X	XX	XX	X
CDG	XXX	XX	XX	XXX	XXX	XXX	XXX	XX	XXX	XXX
CPH	XXX	XX	XXX	XXX	XXX	XXX	XXX	XXX	X	XX
FCO	XXX	X	XX	XX	XXX	XXX	X	X	XX	X
FRA	XXX	XXX	XXX	XXX	XXX	XX	X	XXX	XXX	XX
HAM	XXX	XXX	X	XXX	XXX	XXX	XXX	XX	XXX	X
LGW	XXX	XXX	X	XXX	XXX	XXX	X	XXX	XXX	X
LHR	XXX	XXX	X	XXX	XXX	XXX	XX	X	XXX	XXX
MAD	XXX	XX	X	XXX	XXX	XXX	XX	XX	XXX	X
MUN	XXX	XX	X	XXX	XX	XX	X	XX	XXX	X
ORY	XXX	XX	XX	XXX	XXX	XXX	XXX	X	XXX	XXX
OSL	XXX	X	XX	X	XXX	XXX	X	XXX	X	X
PMI	XXX	XX	X	XXX	XX	XX	X	X	XXX	X
VIE	XXX	XXX	X	XXX	XXX	XXX	XX	X	XX	X
ZRH	XXX	X	X	XXX	XXX	XX	XX	X	XXX	X

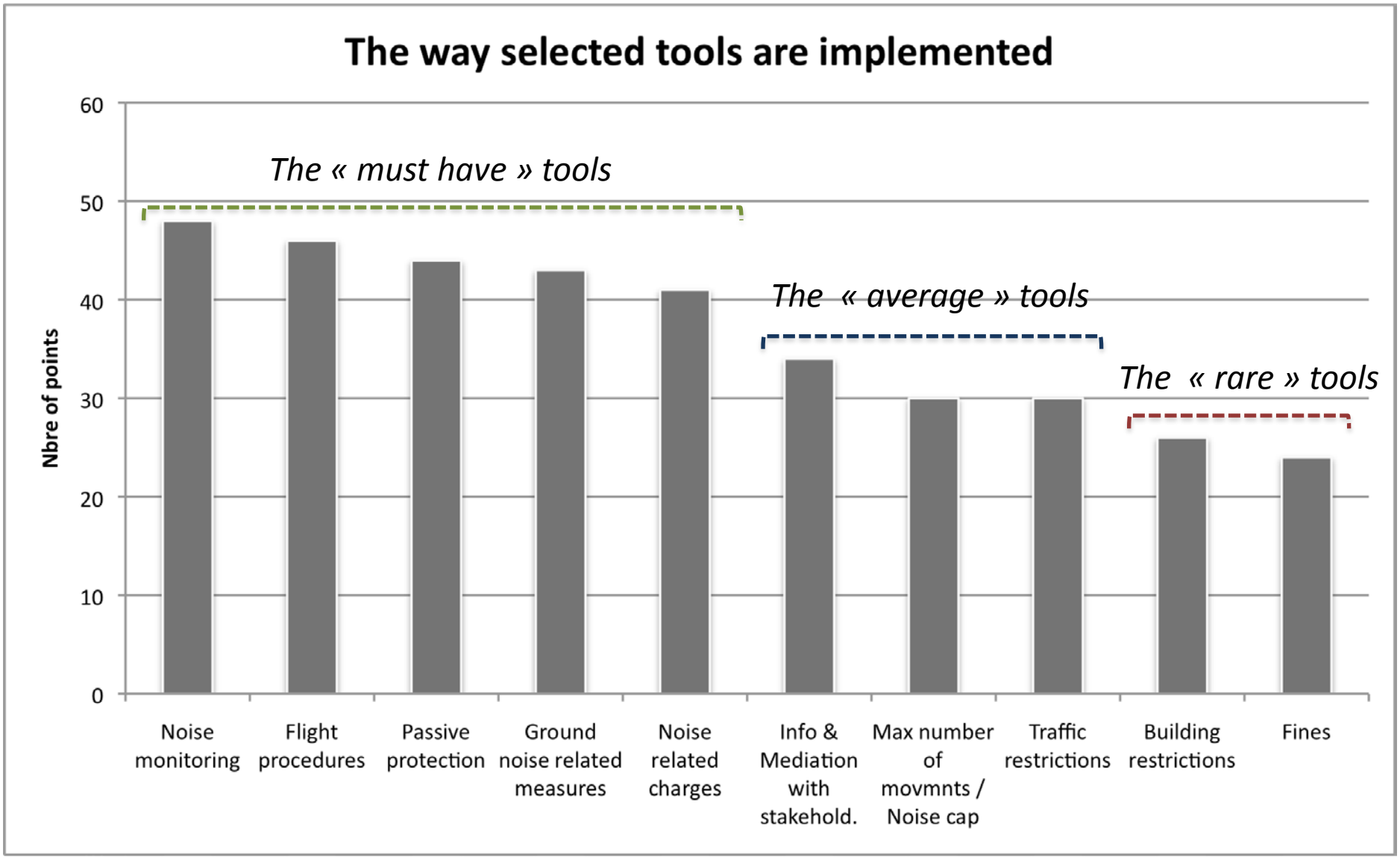
Analysis of the results (3/5)



Analysis of the results (4/5)



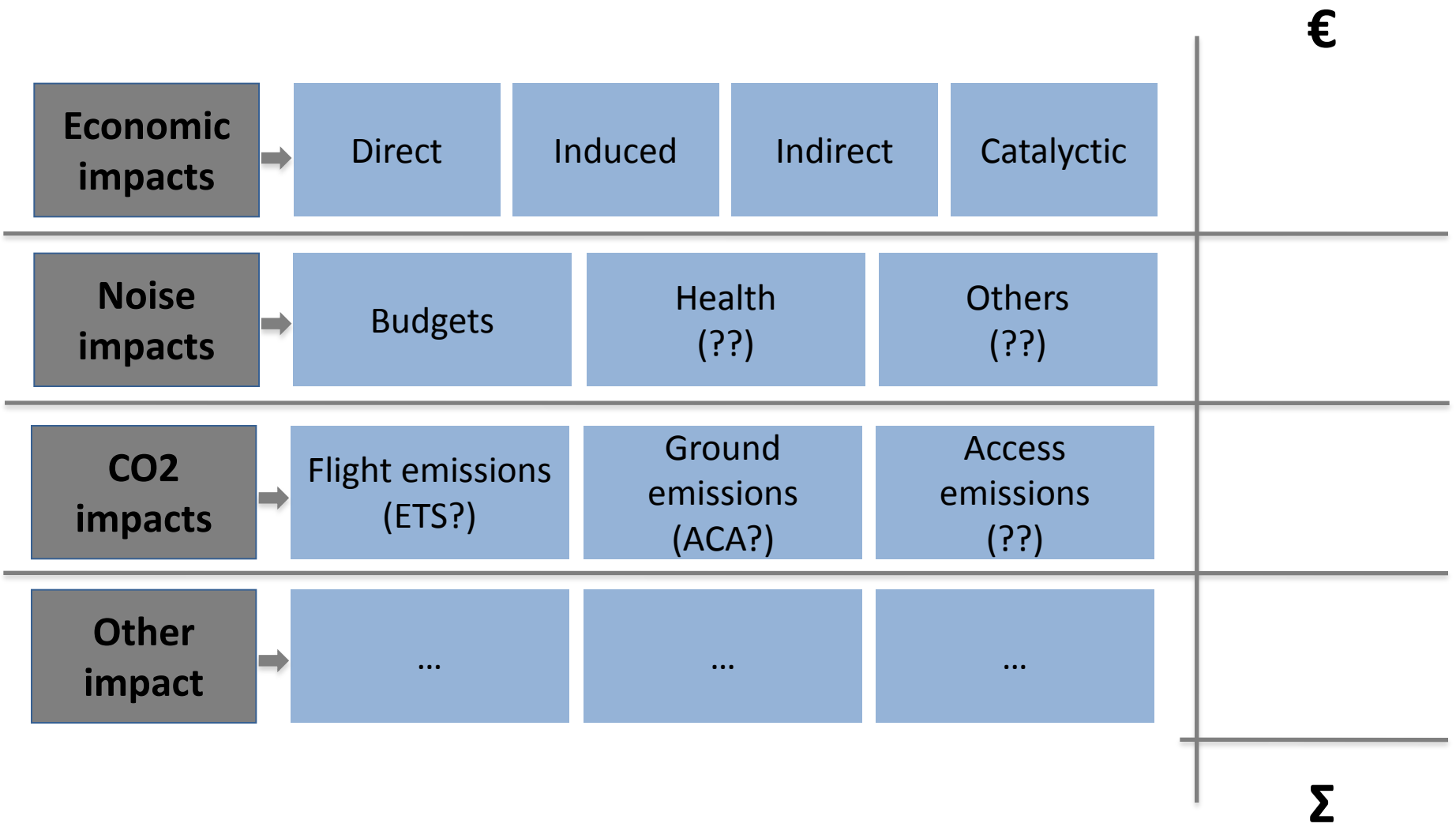
Analysis of the results (5/5)



Conclusion: How does it feed the reflection of TF1?

- Wrap-up of the previous meetings:
  - We have a commonly accepted methodology in order to estimate the economic impacts of airports
  - There is no tool in order to evaluate the impact/cost on health

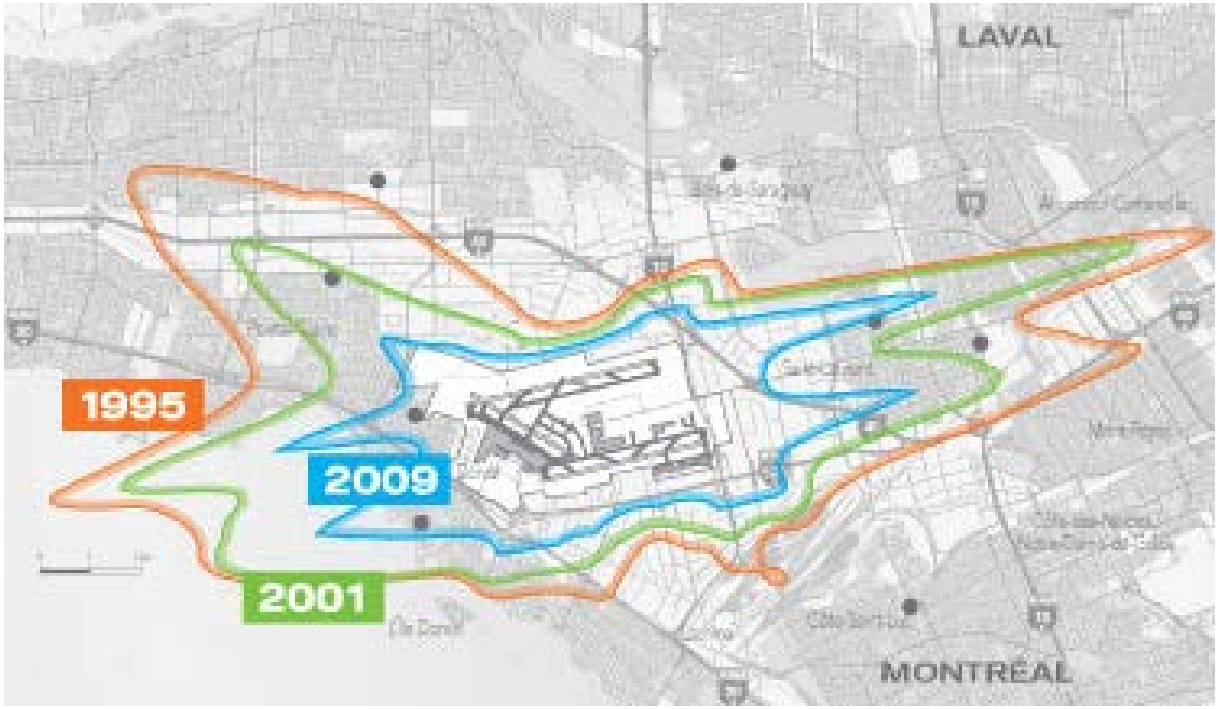
Conclusion: A proposition of matrix of analysis



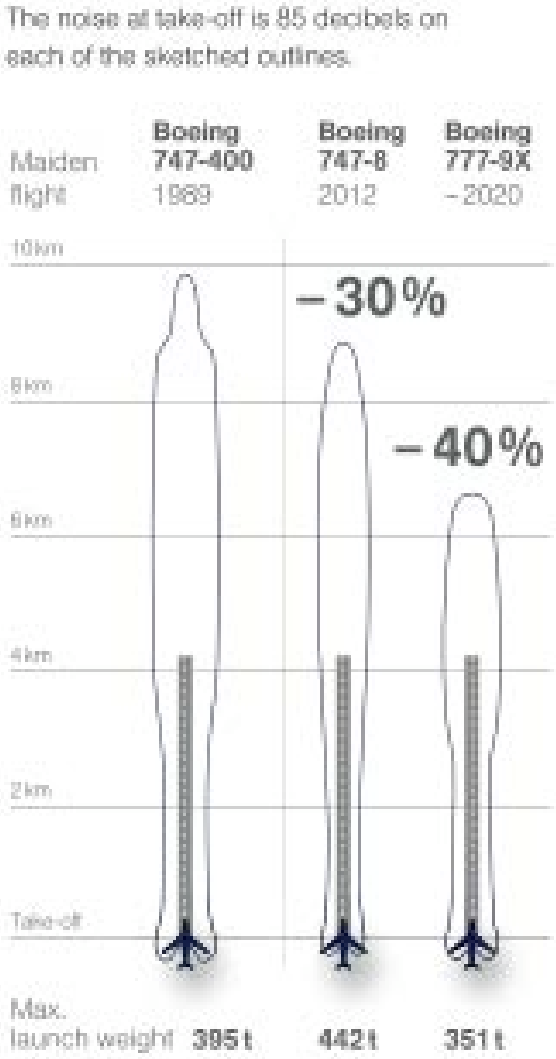
ARC

AIRPORT REGIONS CONFERENCE

The issue: Noise, a paradox?



Source: Aéroports de Montréal



Some examples / Good practices (1/4)

- A global action plan (LHR, LGW, …)

Key performance indicator	2006 Baseline
Percentage of Chapter 4 (or equivalent) Aircraft	3%
Area inside the 55dBA L_{den} contour (km^2)	94.5km^2
Area inside the 48dB $L_{Aeq\,6.5\,hour}$ night-time (winter & summer seasons combined) contour (km^2)	41.3km^2* *2003 figure
Area inside the 57dB $L_{Aeq\,16\,hour}$ daytime summer contour (km^2)	46.7km^2
Average Quota Count of Aircraft operating during the Night Quota Period (2330-0600)	0.7
Number of infringements of the daytime departure noise limit Number of infringements of the shoulder and night period	9 2
Percentage of aircraft achieving a CDA (24 hour period)	81.0%
Percentage of aircraft on track (all routes)	98.2%
Number of individual callers making noise related enquiries	794
Percentage of noise related enquiries responded to within eight working days	94.5%

YOUR LONDON AIRPORT *Gatwick*

Gatwick Airport
Environmental Noise Directive
Noise Action Plan 2010-2015
June 2010

www.gatwickairport.com/noise

9 Our draft noise action plan

Key: Yellow highlights indicate new actions.

Action	Impact	Time scale	Performance indicator	Numbers affected
12. We will work with our partners in Sustainable Aviation to develop and promote low noise flight procedures through evaluation of future operational methods and implementation of best practice, e.g. evaluating the feasibility of introducing a steeper approach as part of an international initiative. Gatwick Airport will implement any recommendations resulting from feasibility studies in conjunction with the CAA and the DfT as and when they are released.	Arrivals Departures Ground	Ongoing	Progress reported in Sustainable Aviation's bi-annual report	In excess of 11,900
13. In conjunction with our airline partners and NATS we will undertake a review in 2010 of our stand planning procedures to identify any opportunities to prioritise stand allocation so as to minimise ground noise impacts.	Ground	2010	Produce report and implement findings where applicable	3,200
Effective and credible noise mitigation schemes				
14. We will acoustically insulate all eligible properties within our current residential noise insulation scheme for which applications have been received by the summer of 2011. We will review this scheme in 2010 with a view to extending the scheme for a further period.	Community noise mitigation initiative	2010	No. of all eligible applicants receiving insulation	3,200
15. We will request that the DfT review and explore in conjunction with Gatwick Airport the possibility of updating the current departure noise limits the current departure noise limits.	Departures	2010	Response from DfT/ review date	3,200
16. We will continue to offer households subject to high levels of noise (69dB(A) L_{eq} or more) assistance with the costs of relocating	Community noise mitigation initiative	Ongoing	No. of eligible applications receiving assistance	100
17. We will request that the DfTreview and explore in conjunction with Gatwick Airport the possibility of updating the current night departure noise limits the current night noise limits	Arrivals / Departures	2010	Response from DfT/review date	In excess of 11,900
18. We will continue to offer acoustic insulation to other noise sensitive buildings such as schools and hospitals, exposed to medium to high levels of noise (63dB(A) L_{eq} or more)	Community noise mitigation initiative	Ongoing	No. of eligible noise sensitive building receiving assistance	39 public buildings, (schools, carehomes, hospitals etc.)

Some examples / Good practices (2/4)

- Related to ground noise:
  - APU Sheriff (HAM)
  - Noise protection (walls, dunes) (FCO)
  - A noise quota for gates (HAM)

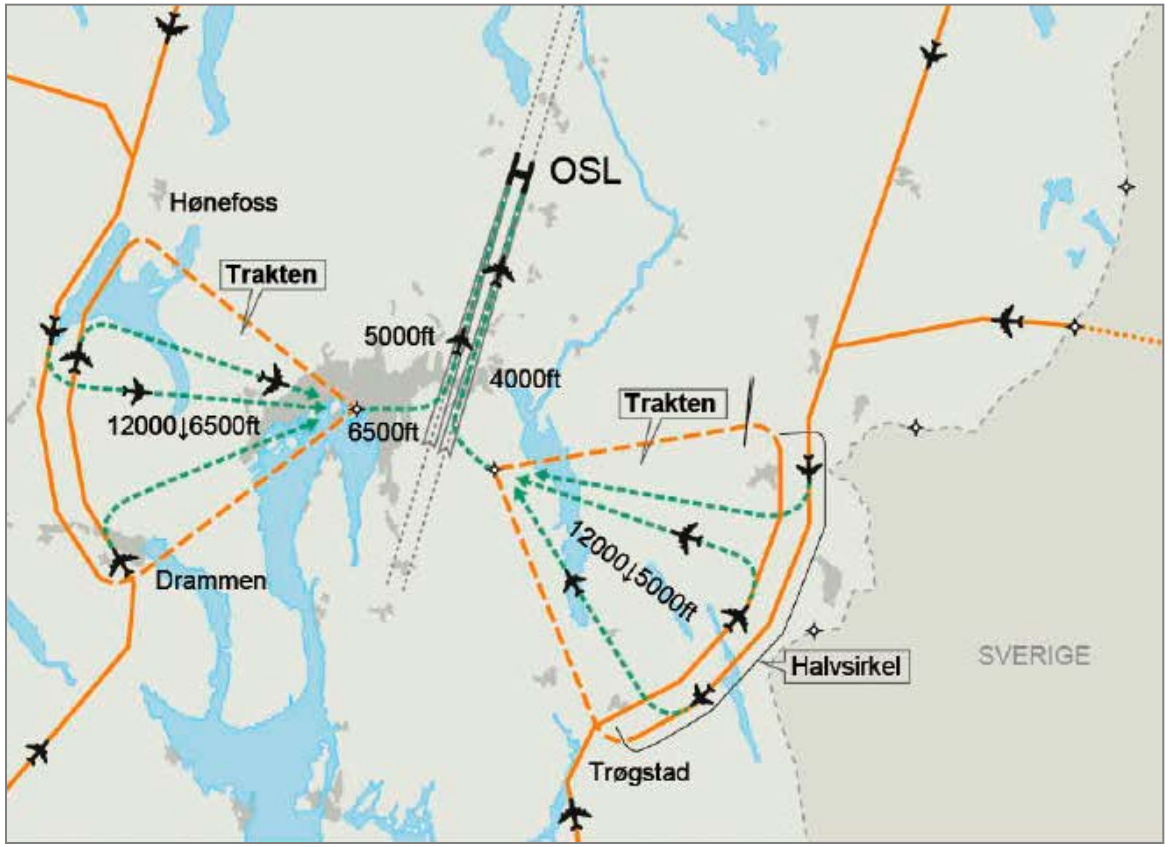
- Related to insulation shemes:
  - A centralised procurement (umbrella contracts) in order to reduce prices (HAM)
  - The definition of a cap of people affected by a certain level of noise (ZRH, CPH, …)

Some examples / Good practices (3/4)

- Related to operations
  - Noise cones, convergence points (CDG, ORY, OSL, …)

Ex: OSL Point Merge System

… and we understand the link with land planning and insulation programmes…



Some examples / Good practices (4/4)

- Related to relationships with stakeholders
  - Mediation process (AMS, VIE, …)
  - Monitoring of what people think about the airport (CPH)
  - A toll free number (CDG, ORY, …)

THE ALDERS TABLE (AMS)

Mandate

Advising government on how to achieve a balance between the growth of Schiphol, disturbance limitation and the quality of the living environment.

Members

Central government and Local authorities;

Aviation parties;

Representatives of residents.

Results

Route changes, micro climate approaches (limiting local disturbance), measures to combat ground noise and increased tariffs at Schiphol for noisy aircraft and night flights.

Project to concentrate international connections at AMS (Mainport strategy)

Recommandations / Additional questions

DESIGNING A COMPREHENSIVE PLAN RELATED TO NOISE

ESTABLISHING A SPECIFIC (NEUTRAL) BODY IN CHARGE OF THE RELATIONSHIP BETWEEN THE AIRPORT COMMUNITY AND THE STAKEHOLDERS

DESIGNING THE CONTOUR OF NOISE POLICY FAMILIES

Methodological disclaimer (1/2)

- Informations and datas gathered mainly come from airports' Internet websites (environment section, charges guides, AIP, etc).
- No contact with the airports has been taken.


- Depending on airports, all the required information are not always available online and could been spited between various documents.
- Accuracy, updating and completeness may vary from an airport to another.

Methodological disclaimer (2/2)

- Benchmarking noise policies is like bencharking tax policies. The problem is that:
  - The « Devil » is in the details
  - All is related to specific contexts and balances
- There are rules... But:
  - Is there a control of implementation?
  - Is there a sanction in case of non compliance?
  - Are sanctions efficient?

- Some other investigations (based on direct contact with airports and authorities) could be useful.

Analysis of the results (1/5)

REMARK

The question isn't **« Is the tool implemented? »**

Neither **« How is the tool implemented? »**

Neither **« How are the different tools implemented and articulated together? »**

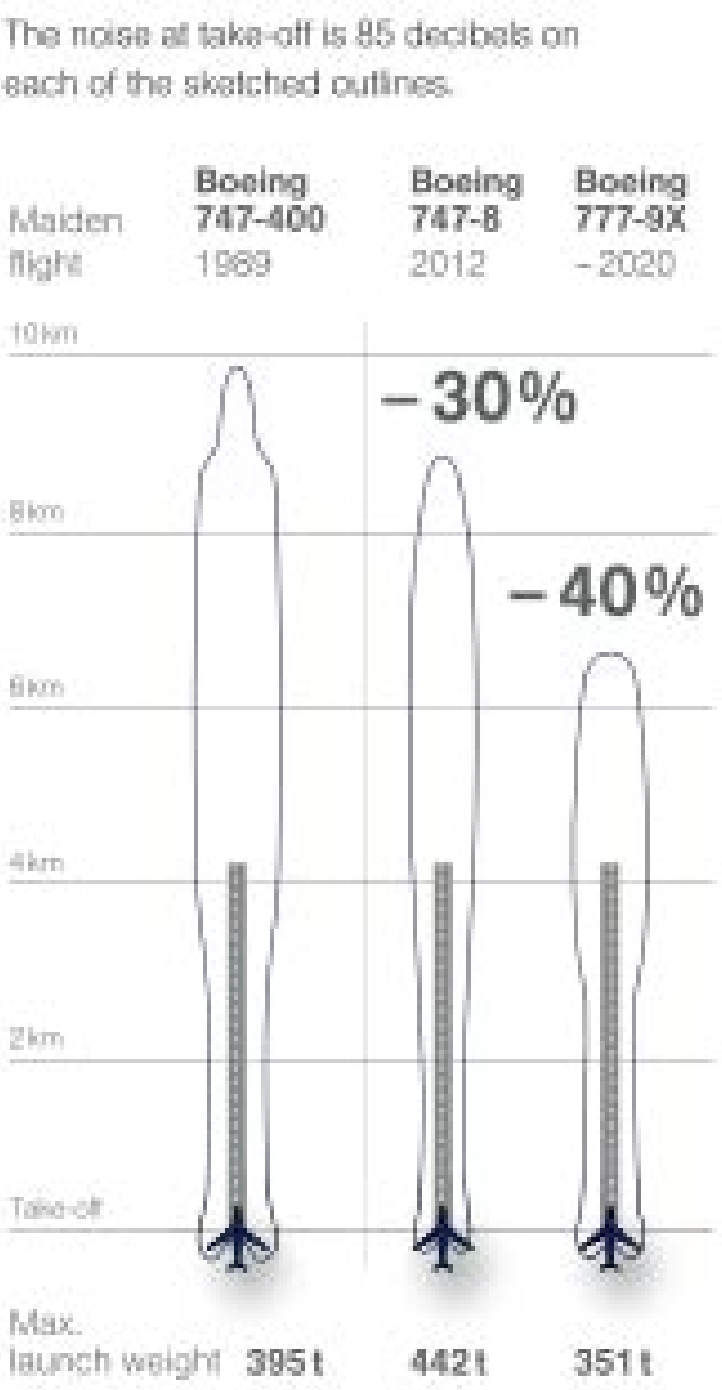
But **« How are the different tools implemented and articulated together regarding to the context? »**

The issue: Evolut

phs:

affic vs noise (population impacted)

oise is geography (it's territory)



The issue: Noise and permission to growth

- *« Aircraft noise is often the main obstruction to obtaining permission to grow »*
- Ang
ICAO

The ICAO balanced approach

Reduction of noise at source

-Significant noise reductions thanks to new technologies
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Land use planning and management

- Planning (zoning, easement,etc.)
-Mitigation (building codes, insulation)

Noise abatement procedures

- Noise preferential routes/runways
- Displaced thresholds
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Operating restrictions

NB: Not to be used as a first resort, only after consideration of benefits -gained from other 3 elements
- Movement caps
- Noise quotas
- Curfews

The set of tools we have analysed

- Noise monitoring and information systems
  - Monitoring networks
  - Information tools
  - Negociation bodies
- Land use planning and management
- Noise abatement operational procedures
- Operating restrictions
- Market-based measures
  - Noise related charges
  - Fines

Our set of airports

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  - All is in the details
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The main tools

- Tableau

Some examples

- Noise cones / noise corridors
- APU Sherriff
- Noise walls / Test hangars
- Ground noise monitoring (at gates, video systems)
- Noise cap
- Grant for exterior areas

Some examples

- Related to ground noise :
  - APU Sheriff (HAM)
  - Noise protection (walls, dunes) (FCO)
  - A noise quota for gates (HAM)
- Related to relationships with stakeholders
  - A real mediation process (AMS, VIE)
  - A toll free number (CDG, ORY)
  - Monitoring of what people think about the airport (CPH)

Some examples

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  - A centralised procurment in order to reduce prices
  - The definition of a cap of people affected by a certain level of noise (ZRH)
- Related to operations
  - Noise cones (CDG, ORY, OSL)

Reco / Next steps

Analysis of the results (5/5)