PRE-STUDY BRANTARE

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PARTICIPANTS

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PRE-STUDY RESULTS

- A number of studies with steeper approach angles have been performed.
- In general will noise levels be lower at steeper approach angles, but there are large uncertainties under which circumstances.
- Little or none consideration given to the flight operational aspects and noise distribution. However requested in most studies.
- Long lead-times to introduce new test- or standard procedures with steeper approach angles.
- Large difficulties in achieving relevant quantities of flights at real "live trials"
THE PROBLEM – IN A SIMPLIFIED MANNER

If the approach angle is increased for a given approach then the distance between the source (aircraft) and a given position on the ground will increase.
- Reduction of noise!

There is also a potential reduction in thrust from the aircraft engines since the steeper approach angle increases the approach speed.
- Maybe an even larger reduction of noise!? 

But modern aircraft are good gliders, so an increased approach angle could lead to the extension of speed reducing devices such as flaps, or speed brakes.
- Increased noise?

And if the speed nevertheless does not reduce then maybe the landing gear needs to be extended at an earlier point.
- Even more noise?
FDR-DATA – NEW POSSIBILITIES

- Possibility to use data from the Flight Data Recorder (FDR-data) will create new openings
  - Larger data quantity
  - The noise source will be known. Thrust, slats, flaps, speed-brake, gear etc.
- The method to use an derived equivalent glideslope (tailwind = steeper glide slope, headwind = shallower glide slope) and study operational consequences will give an extensive amount of data to work with

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BRANTARE - WORK PLAN

- Collect FDR-data (operational & weather)
- Structure & analyse data
- Study available approaches and the operational implications of wind.
- Describe various operational results and their respective potential impact on the noise footprint
- Interaction with industry and dissemination of various activities and results through participation in conferences and publication of conference papers/articles
BRANTARE – POTENTIAL RESULTS

- A better understanding on how the operational behaviour of pilots correlates to different glideslope angles
- A better understanding of flight operational possibilities/limitations relating to different glideslope angles under various meteorological conditions (wind)
POTENTIAL SYNERGY EFFECTS:

- A better understanding of a potentially changed noise generation as a result of a changed flight crew operational behaviour
- A better understanding of a changed noise footprint in the approach area
BRANTARE - PARTICIPANTS

- **KTH – INDEK**: Project lead
- **Novair**: Supplier of FDR-data from the Airbus A321
- **Natmer AB**: Flight operational expertise, flight operational analysis
- **KTH - ABE**: Statistical analysis
- **Vernamack AB**: Receiver and manager of FDR-data, Flight operational expertise, flight operational analysis