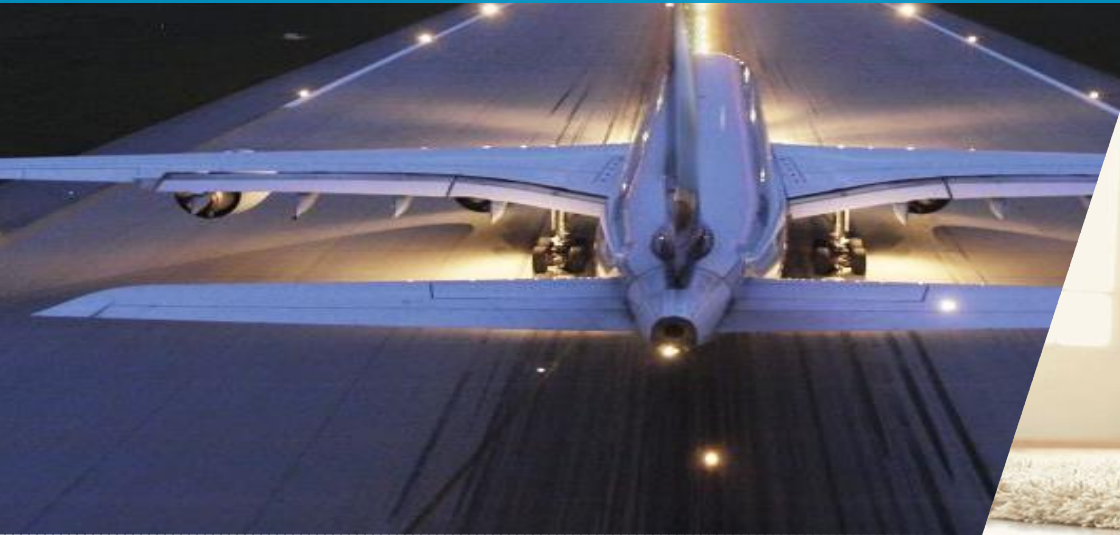


Safety @Airports

How advanced data processing can help ...

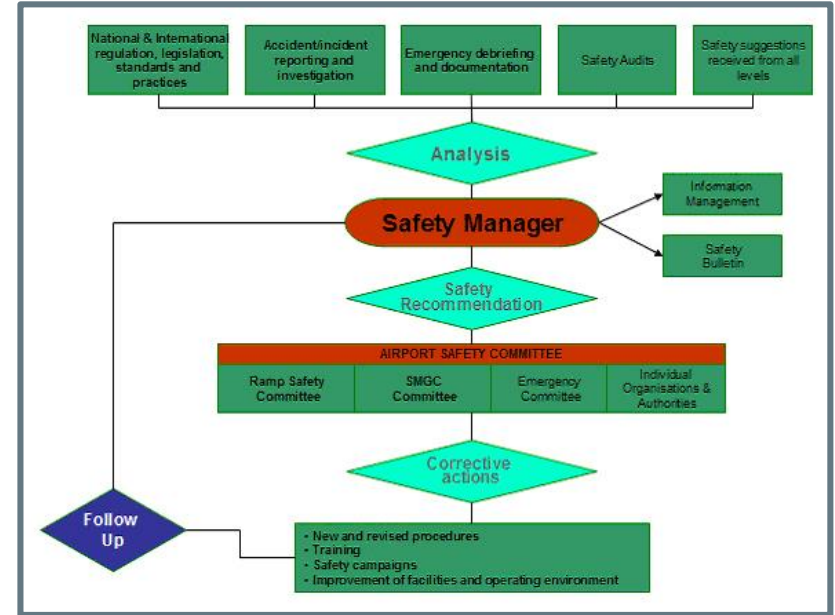


Christoph Schneider, Munich Airport
11-Oct-2018



Data (& analytics) is key for Safety Management Systems....

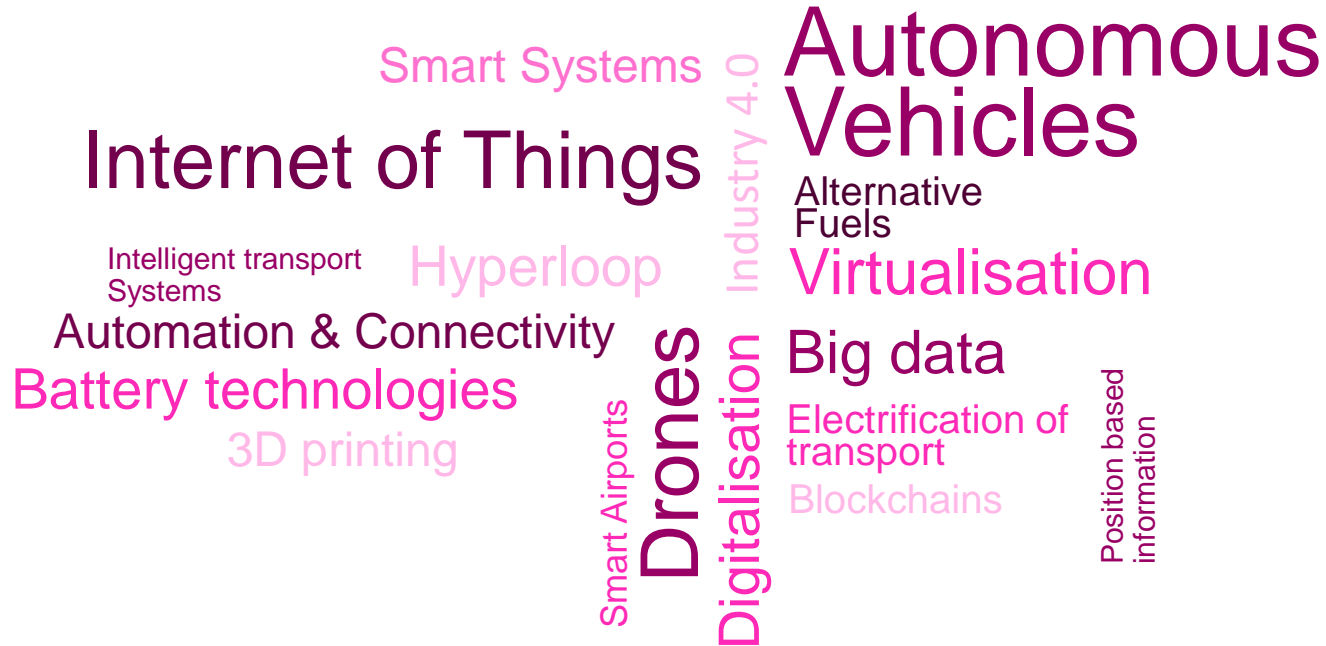
- to quantify safety levels & risks
- to measure the impact of measures
- to detect trends in safety and emerging risks
- to investigate occurrences
- etc.



Source: <https://aci.aero/about-aci/priorities/safety/sms/>

Disruptive change is in the air

The application and integration of new technologies offer a plethora of new opportunities that can improve safety levels but also introduce new risks ... data (analytics) will be the primary tool for risk monitoring & assessment

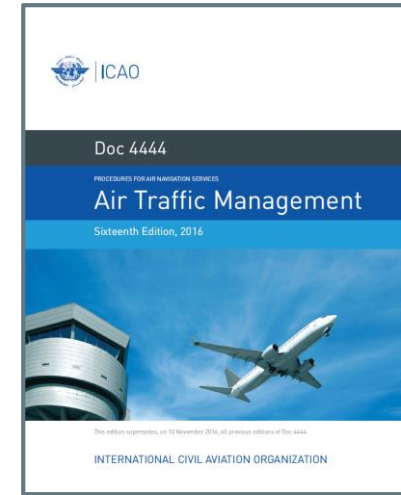
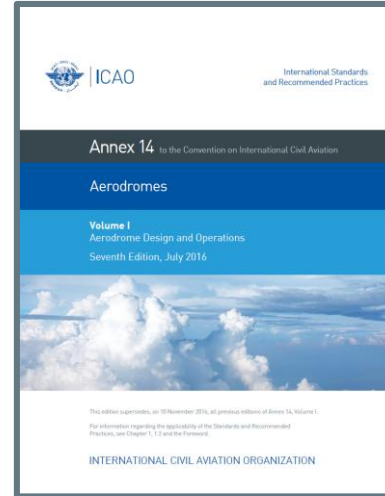


Regulatory aspects ...

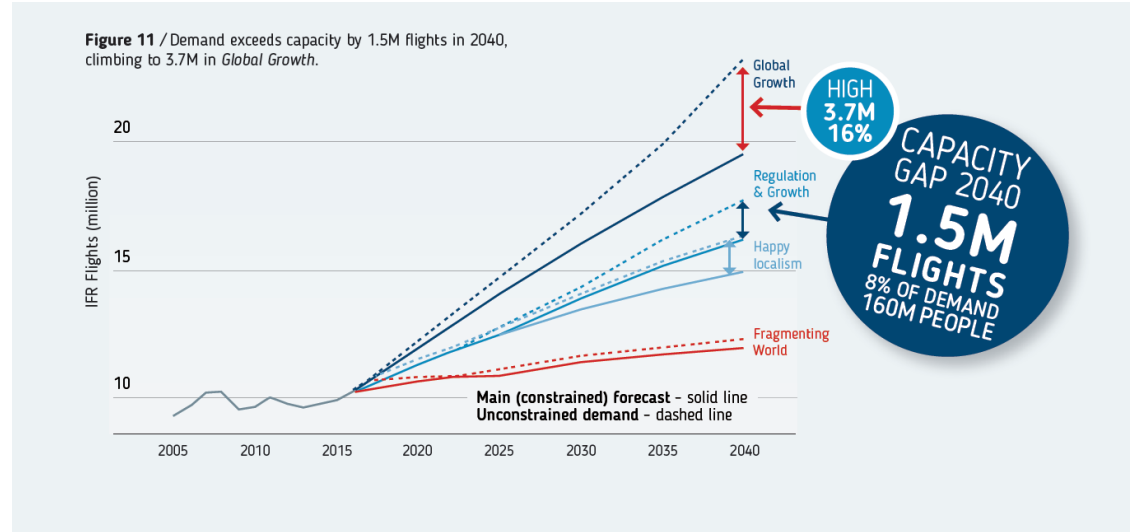
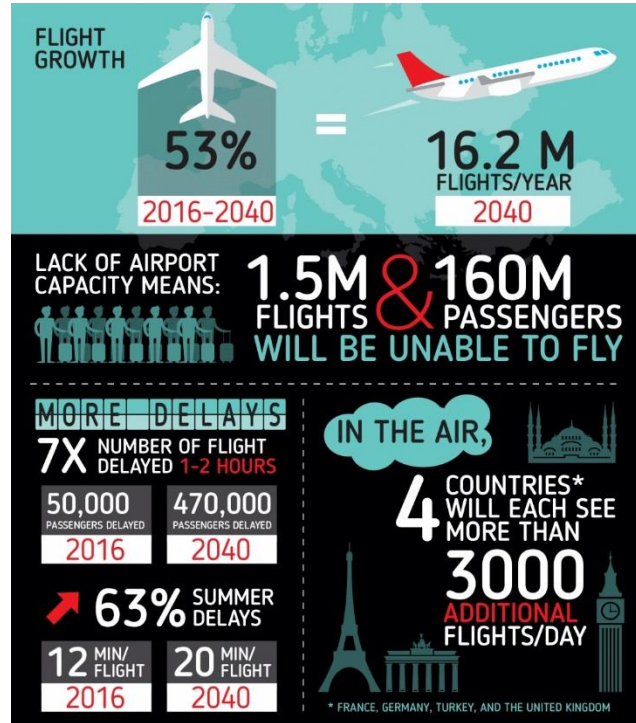
EASA regulation has replaced a lot of ‚common sense‘ by the need for quantitative **safety assessments**



Elements of **ICAO** regulations affecting airport capacity might ‚benefit‘ from a data-driven update 😊



Eurocontrol study 'Challenges of growth 2018' shows significant airport capacity shortfall ... even if all currently projected infrastructures are built !



source: eurocontrol <https://www.eurocontrol.int/sites/default/files/content/documents/official-documents/reports/challenges-of-growth-2018.pdf>

→ We need to push capacity while improving safety !

We see a lot of potential benefit by exploiting data analytics for

- Flight path / runway centreline / taxiway centreline adherence & deviation monitoring (e.g for RWY / TWY separation margins, missed approach track divergence, etc.)
- Capacity / buffer monitoring & analysis (how much & how could buffers be reduced while maintaining safety levels, which buffers have to be increased, etc.)
 - ARR-ARR / ARR-DEP / DEP-ARR & DEP-DEP separation, ROTA/ROTD, RWY exit usage, lineup parameters etc.
 - Runway crossings
 - Taxi operations & interactions with ground vehicles
 - Ground collision hotspots, occurrence detection, reporting & prediction
- Aircraft performance prediction
- Ground vehicle movement patterns

„Data is the new oil“

...and there is always the risk of
contamination

- Data quality is a big issue
- Data quality levels have to be known !



<https://www.lobbycontrol.de/2010/05/bp-deepwater-horizon-desaster-der-ol-lobby/>

Closing comments ...

- Operating parameters of airports depend on external conditions ... these have to be reflected
- There is high potential benefit for access to (non-competitive) data from other airports (e.g. parameters for operation of a certain aircraft type)
- Airports are different ... some learnings can be transferred to other airports, some not
- Data availability currently often is an issue ...
- Data analytics should be used to
 - detect & predict occurrences
 - assess safety levels
 - adjust operating parameters
 - increase predictability of operations



A nighttime photograph of an airport complex. On the left, a tall, white air traffic control tower stands prominently. To its right is a large, modern airport terminal building with a glass facade and a distinctive, illuminated, curved roof structure. The scene is lit by warm artificial lights from the buildings and the ground, contrasting with the deep blue twilight sky. The text "Thank you !!" is superimposed in large, white, sans-serif font across the upper right portion of the image.

Thank you !!