



Risk modelling:

from safety data to a risk picture



16 March, 2017



Models within the Risk Observatory





Currently available

Different types of models, with different scope and purpose, using different type of data ...

barriers based,

- event sequence diagrams,
- physical models,
- safety models for design, ...











Event Sequence Diagram



Physical Models

Contributing Factors



Runway overrun

Incident Model









Source: The Aviation Herald / AP / Kyodo News



Incident Probability

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Safety Models for design





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Structuring the Risk Observatory

Need for a Risk Observatory structured in a way allowing to 'plug' different types of models in order to provide

- a full risk picture
- the risk associated to the several contributors of the different domains



BackBone Model



Backbone models



How it looks like ...









Contributing Factors - Influencing Factors

Influencing Factors





Dashboard from P5

ANSP Safety Dashboard - Q4





Participation to CISM ocurses is not increasing despite the communication campaign launched. Safety unit tasked to understand not causes.

Participation to Human Factors course for safety actors increased during the year. Powelble need for local adition of the course, invalving different staff.



Top 3 contributing factors

SMI		RIN		AI	
-	Coordination issue with neighbouring Unit	22%	Coordination issue with ground vehicles	28%	Use of out-of-date charts (VFR pilot
21	Capacity overload	19%	Stop bars failure	18%	OPS issues
17	Late instruction to conflicting aircraft	9%	Pikt mistake	11%	APW failure



Technical malfunctioning with operational impact



European Safety KPI
EOSM Level of Effectiveness of Safety Management System
ABCDE ABCDE ABODE Salety Porky and Clijecthear Salety Tisk Managament Salety Adourance ABCDE ABCDE Salety Production Salety Codara
RAT usage % of RAT application
5M
A JUST CULTURE % "YES" answers to EASA survey
0.05
External safety factors
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Risk Overview for current situation

Occurrences and Risk





Safety Indicators

- Mid-Air Collision
- Near Mid-Air Collision
- Separation Minima Infringement
- Tactical Conflicts
- Overloads

Ref.	Generic contributing factors (2 level of items max.)
31	Airborne collision avoidance
32	ATC collision prevention
33	Tactical Conflict Management - Separation provision
34	Traffic planning & coordination
35	Airspace infringements Management
36	AC Deviation Management
37	Trajectory management
38	Flow &Capacity management

Risk impact assessment for a specific change or situation







P4 - Total system risk assessment

- Providing a full risk picture
- Showing the contribution to risk from the several domains
- Supporting the safety impact assessment of changes within one or several domains



P4 will deliver a Proof of concept, including the modelling part. Implementation, maintenance and operational use aspects in a real environment are beyond the timeframe of P4.

Consortium

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http://www.futuresky-safety.eu

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