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# Evolution of EAPPRI and the new safety recommendations

EAPPRI implementation seminar  
Lisbon, 18 October 2018

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EUROCONTROL

# Scope



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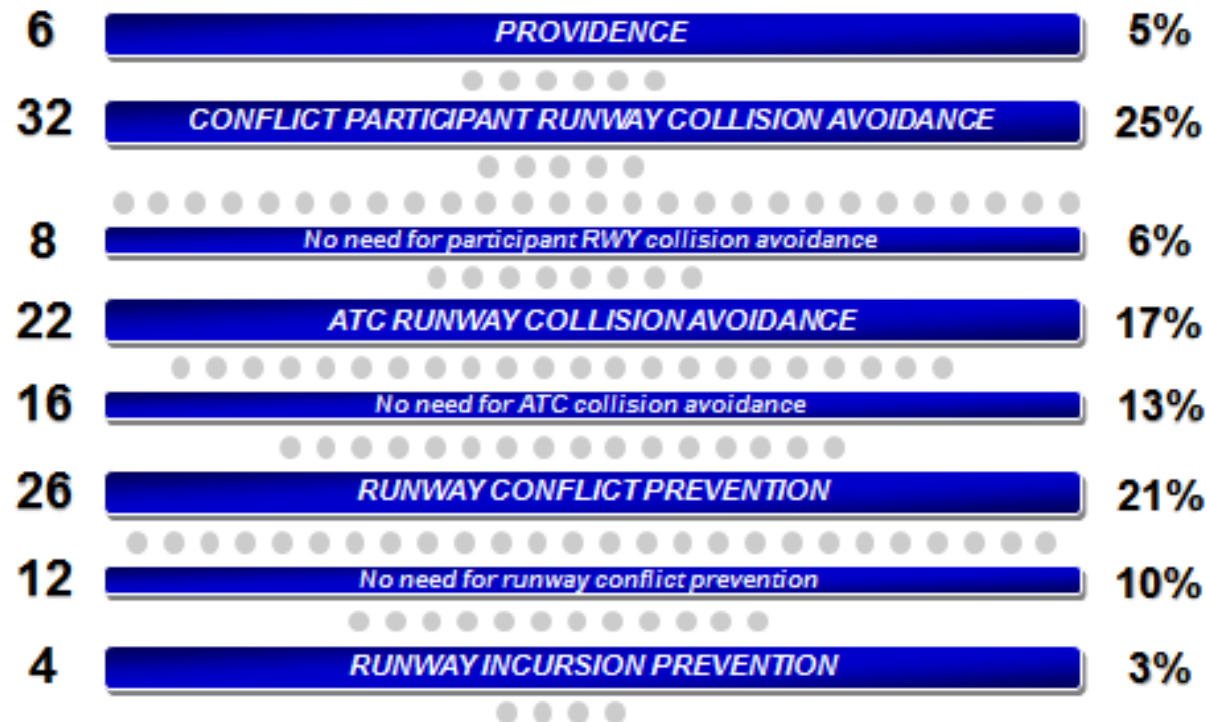


- EAPPRI v3.0
  - Why an Action plan?
  - Action plan evolution
  - Action plan scope
  - New recommendations

# EUROCONTROL - RI part of NM TOP 5 risks

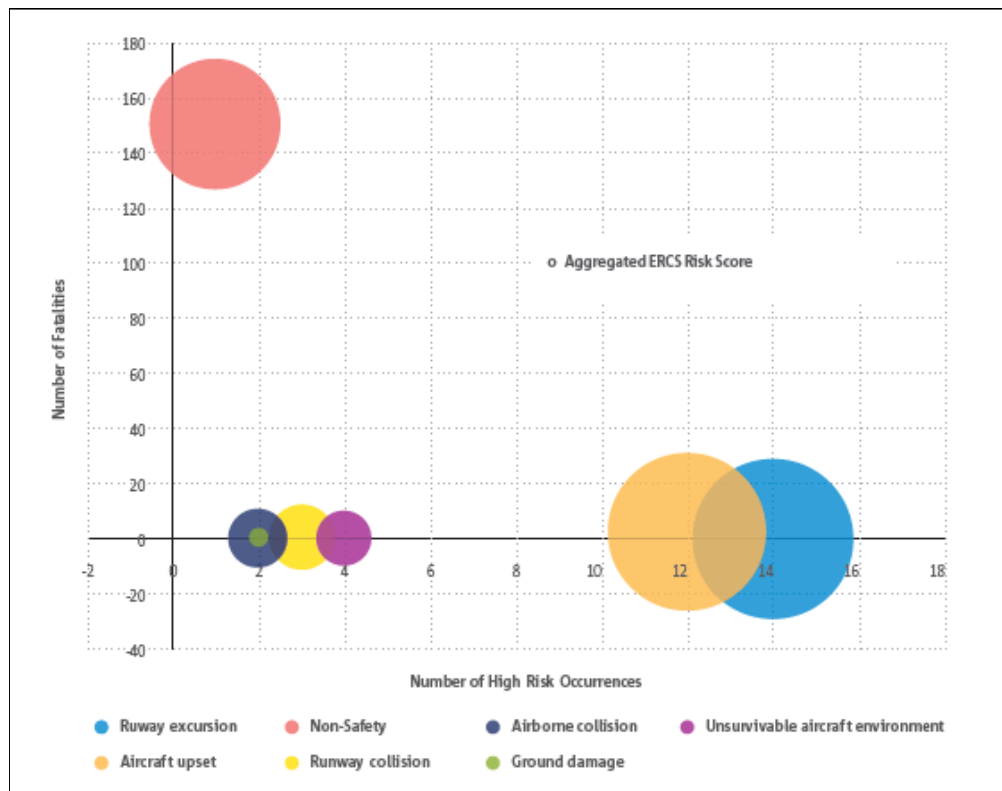


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126 European RI incidents in 2013-2015

# EASA Annual Safety Review 2017



- Runway collision identified as one of the 6 priority key risk areas for CAT operations
- Runway collision identified as one of the 7 priority key risk areas for aerodrome and ground handling

# European Plan for Aviation Safety (EPAS)



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- Runway excursions and collisions - one of the Top 2 risk areas for CAT operations
- EPAS RWY safety goal: Continuously assess and improve risk controls to mitigate the risk of REs and RIs.
- MST.014: Include runway incursions in national SSPs

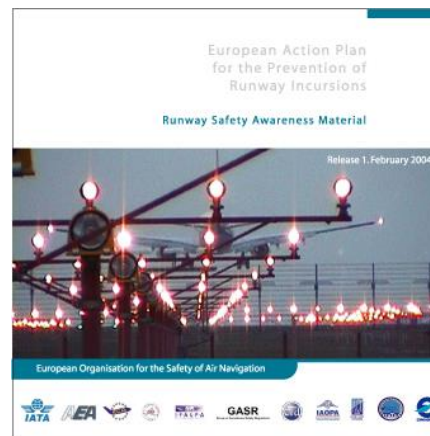
# EAPPRI – A brief history



# Linate 2001



2003



2004

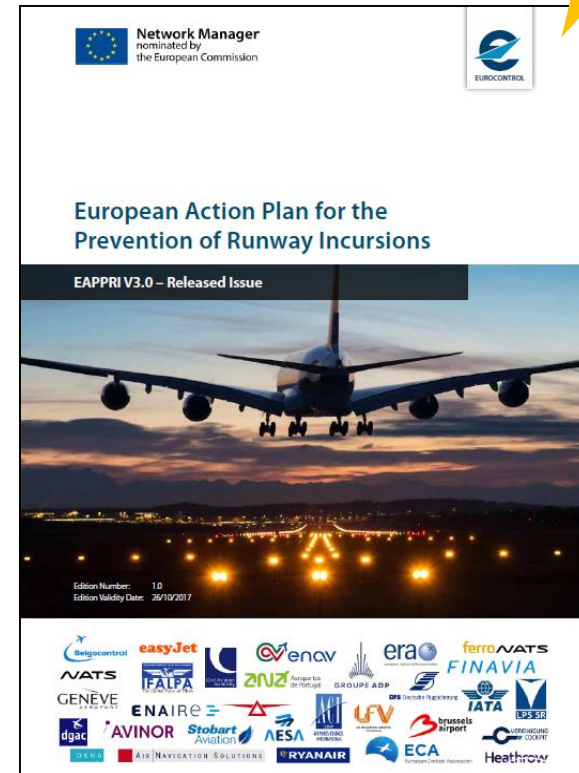
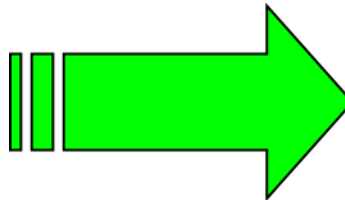


2011

# BUT, EAPPRI LIVES!



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# EAPPRI drivers of change

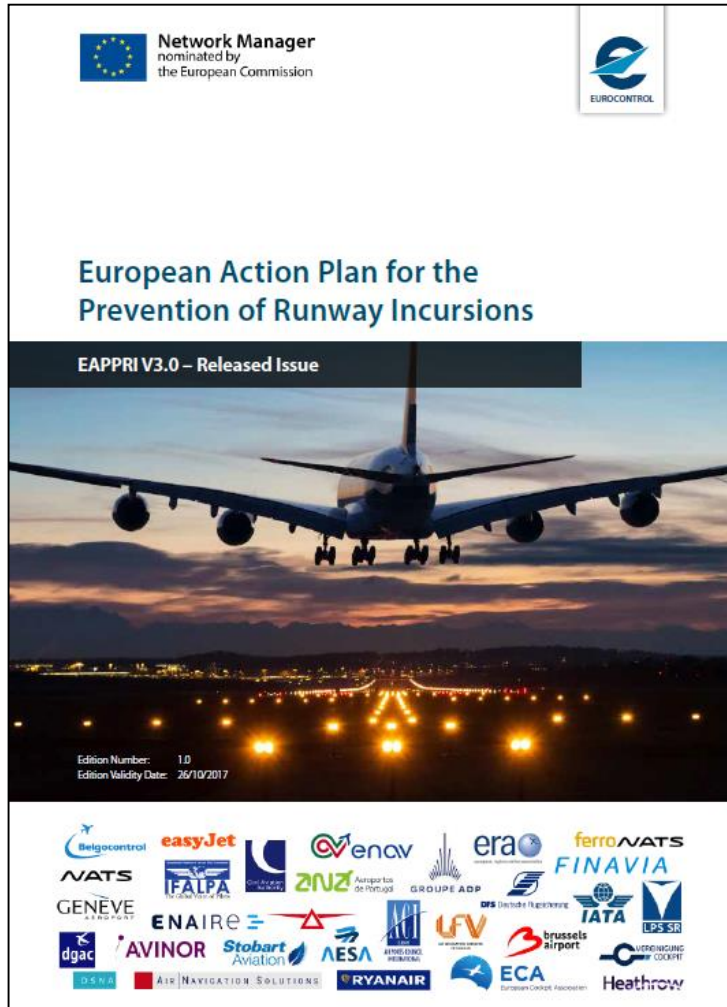


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<b>P</b> olitical	SES II, EU performance management (Risk Assessment Tool (RAT) for runway incursions)
<b>E</b> conomic	Aerodrome capacity constraints, runway throughput/pressure, fuel efficiency
<b>S</b> ocial	Increasing mobility, demand, public expectations (safety levels)
<b>T</b> echnological	Aerodrome Safety Nets: A-SMGCS, Runway Status Lights ATC Safety Nets (SESAR), datalink. Aircraft Operator Safety Nets: RAAS Future: Remote Tower, drones/RPAS
<b>L</b> egal	New ICAO SARPS (Annex 14) and EU regulations and requirements (e.g. aerodrome certification, SMS)
<b>E</b> nvironmental	Noise abatement – sub optimal runway configurations



# EAPPRI 3.0



## ***EAPPRI 3.0 launched at ICAO GRSS***



- Published in November 2017
- “From industry for industry”
- Reviewed and substantially updated
- 104 safety recommendations in total
- More than 25 new recommendations
- New implementation guidance material

# EAPPRI 3.0 – New Recommendations



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European Action Plan for the Prevention of Runway Incursions v3.0 (EAPPRI v3.0) new Recommendations



## SECTION General Principles

(applies to Air Navigation Service Provider, Aircraft Operator, Aerodrome Operator)

### GP1

**Assess effectiveness of SMS**  
(with regard to runway safety/ runway incursion prevention)

**Rationale:**  
SMS should have been implemented in line with ICAO and EU provisions; however, in spirit of continuous improvement, re-assess all aspects of SMS related to runway safety (in particular runway incursion prevention) and ensure optimisation

### GP2

**Continue to develop components of SMS and move towards a data driven, performance based safety-system approach with an emphasis on safety assurance and identifying best practice and signs of excellence**

**Rationale:**  
Ensure a proactive approach: learn from "what goes right" as well as "what goes wrong" in line with Safety-II philosophy

### GP3a

**Assess effectiveness of aerodrome local Runway Safety Team (RST), how it works and consider how it can be improved**

**Rationale:**  
Aerodrome local RST should have been established in line with ICAO guidance and EU regulation; however, in the spirit of continuous improvement, confirm that working arrangements are optimal. Check role, terms of reference, composition, frequency, tasks and outputs

### GP3b

**Assess effectiveness of runway safety awareness campaigns**


**Rationale:**  
In conjunction with GP3a above, specifically re-assess safety awareness campaigns established at each aerodrome. Consider format, method of delivery, frequency and feedback

### GP4

**European stakeholders should work together to study the interpretation of the ICAO runway incursion definition with the aim of improving the consistency and credibility of runway incursion reporting via appropriate regulatory channels**

**Rationale:**  
Still widespread disparity in interpretation of ICAO runway incursion definition. Improve consistency and credibility of runway incursion reporting

**Note:**  
All runway safety related events should be reported and investigated as necessary



- Development of SMS (data driven, performance based)
- Effectiveness of SMS
- Effectiveness of runway safety team
- Effectiveness runway safety campaigns
- Runway incursion definition interpretation

# EAPPRI 3.0 – New Recommendations



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## SECTION Aerodrome Operator (Ad Op)

### Ad Op 1

Ensure briefing and supervision of external aerodrome construction contractors' drivers and other personnel working on the airfield

**Rationale:**  
External contractors may not be runway safety 'aware'; important to ensure that they are properly briefed and supervised

### Ad Op 2

Carry out regular audits of airside driving permits (e.g. check 'recency' of use) in particular those allowing access to the runways, which should be as few as possible

**Rationale:**  
Best practice to ensure access to runways is kept as low as possible

### Ad Op 3

Promote the adoption of 'sterile cab' procedures when on the manoeuvring area

**Rationale:**  
Aerodrome local RST should have been established in line with ICAO guidance and EU regulation; however, in the spirit of continuous improvement, confirm that working arrangements are optimal. Check role, terms of reference, composition, frequency, tasks and outputs

### Ad Op 4

Identify aerodrome Protected Areas and produce a map for drivers

**Rationale:**  
Improve drivers' situational awareness. Assist in interpretation of runway incursion definition

### Ad Op 5

Assess the numbering/naming policy for aerodrome vehicles and consider assignment of unique numbers/names for each airside vehicle

**Rationale:**  
Best practice measure to clarify the role of airside vehicles (e.g. the One (or similar) is always the Chief Fire Officer) and reduce risk of vehicle related call sign confusion

### Ad Op 6

**Recommendation AD Op 6:**  
Closely spaced multiple parallel runway holding positions on the same taxiway should be avoided.

**Rationale:**  
Wide (nonstandard) taxiway entrances reduce the effectiveness of signs and markings as aids to prevent ground routing error and the infringement of the runway protections



- Aerodrome contractors
- Runway driver audit checks
- “Sterile” cab
- “Ops Normal” calls (with ATC)
- RWY protected Area Map
- Vehicle naming/numbering policy
- Closely spaced parallel holding positions
- H24 Stop Bars or equivalent means (with ATC)
  - Elevated lights

# EAPPRI 3.0 – New Recommendations



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## SECTION Aircraft Operator

### AO1

If received significantly early, flight crew should confirm with ATC the line-up/take-off or crossing clearance when approaching the runway holding position.

**Rationale:**  
Aims to reduce RIs caused by pilots not remembering if they have clearance (or not) to enter the runway. Complementary Recommendation for ANSPs not to give clearance too early.

### AO2

Flight crew should consider to confirm Landing clearance on short final, if ATC issued it more than 5 nautical miles from touch down.

**Rationale:**  
Aims to reduce RIs caused by pilots not remembering if they have clearance (or not) to land. Complementary Recommendation for ANSPs not to give clearance too early.

### AO3

Ensure that crews are aware of the significance of red lights (e.g. stop bars and other red lights) used in line with alerting systems to prevent incorrect entry onto a runway and to enhance situational awareness.

**Rationale:**  
Take account of introduction of runway status lights in Europe.

### AO4

Pilots shall only apply EOT procedure after careful consideration of local and operational circumstances so as to avoid a conflict with the sterile cockpit procedures.

**Rationale:**  
EOT could potentially be a distraction; aim is to maintain a sterile cockpit as far as practicable.




- Early take-off/landing clearance
- Aerodrome **red** lights (e.g. RWSL)
- Engine Out Taxi

# EAPPRI 3.0 – New Recommendations



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## SECTION ANSPs

(also applies to Aerodrome Operator for ANSP 1, 2 and 3)

### ANSP 1

Consider implementation of H24 stop bars (and associated no crossing illuminated stop bar procedures)

**Rationale:**  
They world SSG studies consistently show that if H24 stop bars were available then many reported RIs could/would most likely have been avoided

**Note:**  
Important to acknowledge potential cost and drawbacks, e.g. potential increase in controller workload (tower ergonomics and stop bar ops need to be optimised/automated)

### ANSP 2

Assess conditional clearance operational procedures and practices. Consider if the operational use of conditional clearances can be removed or reduced

**Rationale:**  
Safety studies have demonstrated that the misapplication and misinterpretation of conditional clearances can be a contributing factor in runway incursions

### ANSP 3

Controllers should only issue line-up and/or take-off or crossing clearance when the aircraft is approaching the runway holding point


**Rationale:**  
Early passing of line-up and/or take-off clearance, which has no capacity related benefits, has been a contributing factor in some RIs

### ANSP 4

Controllers should avoid issuing landing clearance earlier than necessary

**Rationale:**  
Early passing of landing clearance has been a contributing factor in some RIs

**Note:**  
This should be established as local best practice and can normally be defined as a distance from touchdown



- H24 Stop Bars or equivalent means
  - Review contingency
- “HOLD POSITION” phraseology
- Runway occupancy status
- Ops Normal” calls (with ATC)
- Conditional clearances
- Early take-off and landing clearances
- HMI and Controller Working Positions
  - Facilitate improved scanning & “Heads up”
  - Vacating aircraft



# EAPPRI 3.0 – New Recommendations



- Simplify NOTAM information/data
  - Enhance readability/usability
- Move to digitise data for graphical display of NOTAM

# EAPPRI 3.0 – New Recommendations



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## SECTION Regulator

(also applies to Aerodrome Operator for ANSP 1, 2 and 3)

### Reg 1

National agencies charged with the oversight of aviation safety should consider how they discharge their responsibilities for runway safety which may include:

- 1a** The establishment and coordination of a national/state runway safety group/team
- 1b** Including prevention of runway incursions in national runway safety plans/State Safety Plans
- 1c** Supporting the state-wide promotion and coordinated implementation of (EAPPRI v3.0)
- 1d** Participating in aerodrome local Runway Safety Teams (at their invitation)

**Rationale:**  
Regulator involvement bolsters support and improves coordination of national runway safety activities

### Reg 2

Assess the operator's SMS performances and its risk exposure related to runway incursions and use this assessment to adjust the oversight accordingly on a risk and performance-based approach

**Rationale:**  
Improve national oversight of runway incursion prevention activities of all stakeholders



- Assess operators' SMS
  - Performance and risk based
- RI prevention in State Safety Plans
- National runway safety teams
- Promotion of EAPPRI v3.0
- Aerodrome local runway safety team

# EAPPRI 3.0 – New Recommendations



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## SECTION Future Work

(Applies to EUROCONTROL but other stakeholders' views are welcome)

### FW 1

Monitor and evaluate emerging technologies that may affect future aerodrome operations. Consider potential implications concerning runway safety and provide appropriate guidance, for example


### FW 1a

Authorised Remotely Piloted Aerial Systems (RPAS)/drone and autonomous vehicle operations on and around the aerodrome

### FW 1b

Remote Tower (rTWR) operations

**Rationale:**  
Emerging technologies may impact on runway incursion prevention. There is a need to monitor potential effects, e.g. enhanced rTWR sessions may benefit controllers but how will rTWR operations affect ANSP participation in local RST?  
How might future/authorised drone use, e.g. for infrastructure inspections, including aerodrome surfaces, and instrument flight checks/calibrations affect runway safety/runway incursion prevention?



- Emerging technologies
  - Authorised RPAS/drone use on airports
  - Remote Tower technologies



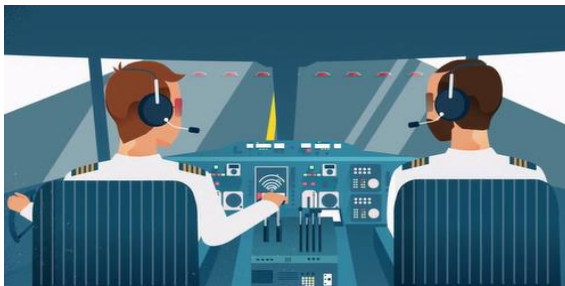
# SKYclips for runway safety promotion



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***SKYclips - short animation videos available on SKYbrary:***

<http://www.skybrary.aero/index.php/Solutions:SKYclips>



Stop Bars



Conditional  
Clearance



Landing Without Clearance

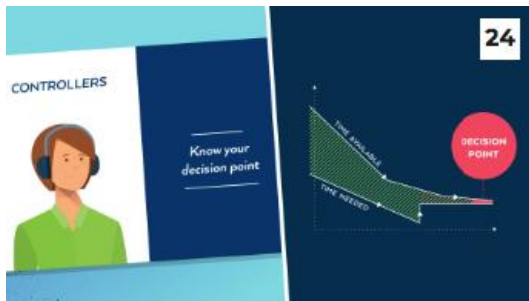
# EAPPRI Implementation support

## SKYclips



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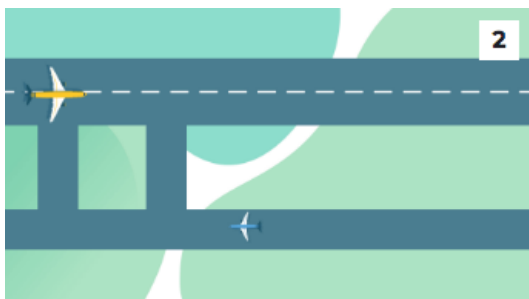
***Under development***



Low Level Go Around



Low Visibility Take-Off



Immediate Departure



Airside Driving

# Training Opportunities - EUROCONTROL Institute of Air Navigation Services (IANS)



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Adobe Flash Player 9

File View Control Help

## PREVENTING RUNWAY INCURSIONS

V0.99

EUROCONTROL

Home Facts & figures Videos Implementing Safety Quiz Runway Safety Training ARIA

ICAO Manual for Preventing Runway Incursions European Action Plan for the Prevention of Runway Incursions Contact information

1 3


### Aerodrome resource management

**Joint training...** In recognition that a team on the manoeuvring area consists of pilots, drivers and air traffic controllers:

**The Aerodrome Resource Management (ARM) course**

Maintaining teamwork between pilots, air traffic controllers, aerodrome operators and vehicle operators is very important since one of the most common causal factors in runway incursions is the breakdown of teamwork... with often tragic consequences.

An effective way of building and maintaining teamwork between the partners concerned is the organisation of local ARM courses. Candidate **facilitators** of such local courses should attend an **ARM train-the-trainer course** organised by EUROCONTROL.



NEXT

Start Inbox - Microsoft Outlook Microsoft PowerPoint - [...] 2 Windows Explorer Adobe Flash Player 9 08:25

**Course dates 2018**  
**12-16 November**

<http://www.eurocontrol.int/sites/default/files/publication/files/2018-training-brochure.pdf>



# More safety knowledge?

The single point  
of reference in the network of aviation safety knowledge

**SKY**  
brary

Operational Issues   Enhancements   Safety Information Portal   Safety Alerts   Skybrary Solutions

[www.skybrary.aero](http://www.skybrary.aero)

The banner features a dark blue background with a grid of 15 icons representing various aviation safety topics such as cockpit resource management, cabin safety, and emergency procedures. Navigation links are visible at the top of the grid.

# Questions?



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