



SAFETY LINE

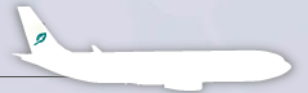
Big Data applied to Aviation

Session X – Dynamic Risk Management and reliable KPIs

Amal FEFEL - Business Development Manager

Safety Line

Amal.felfel@safety-line.fr



Confidentiel

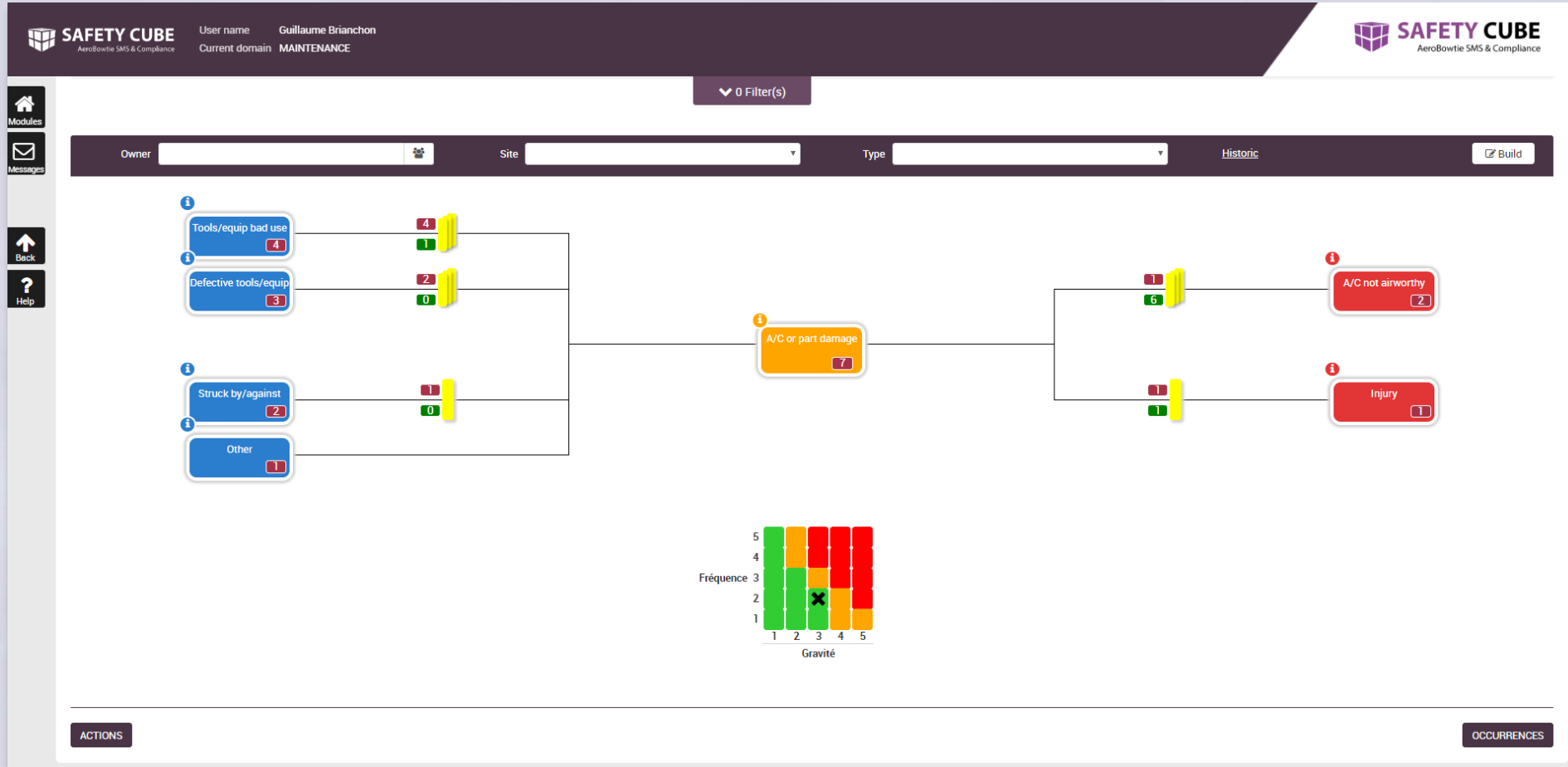


About Risk Management

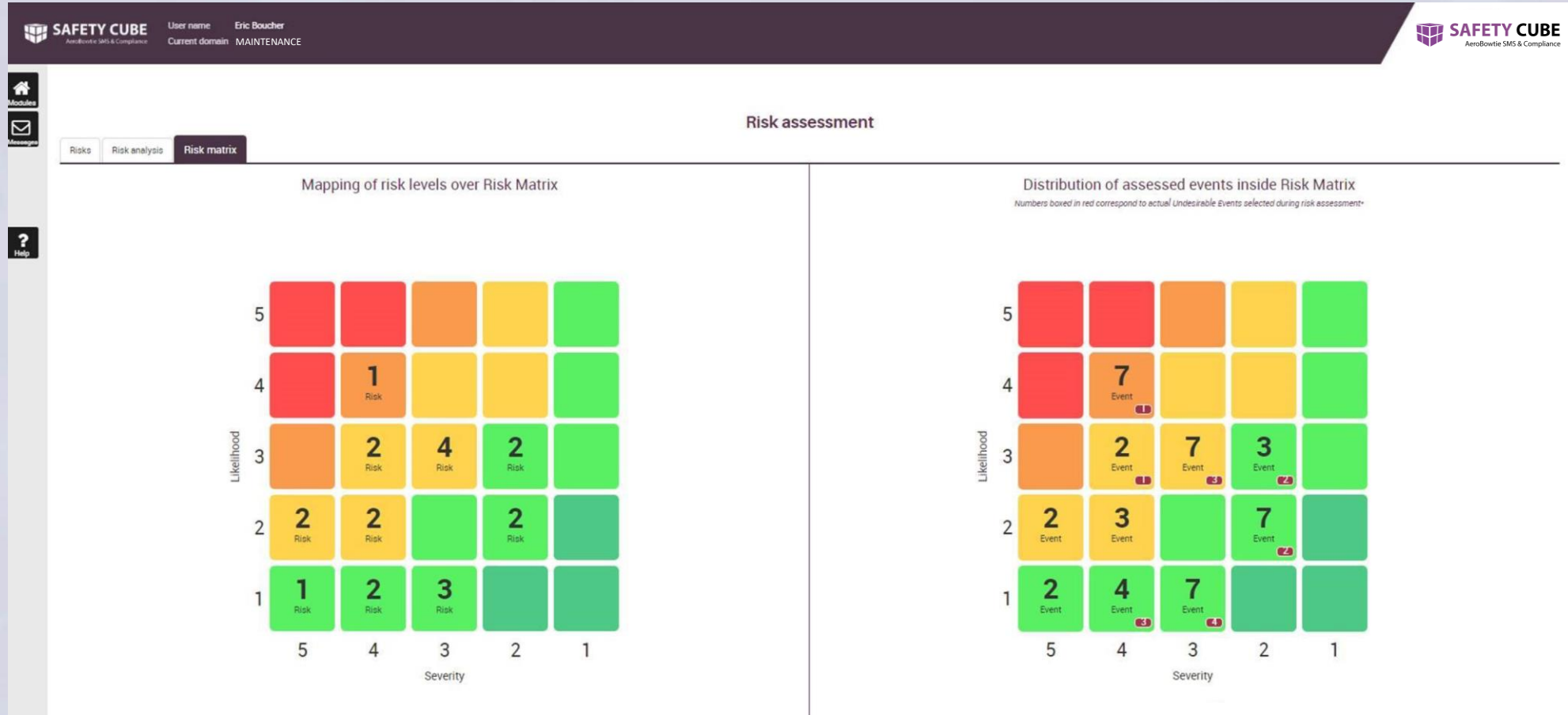
**“You cannot manage what you don’t measure”
“Peter Drucker”**

Confidential

Dynamic Risk assessment

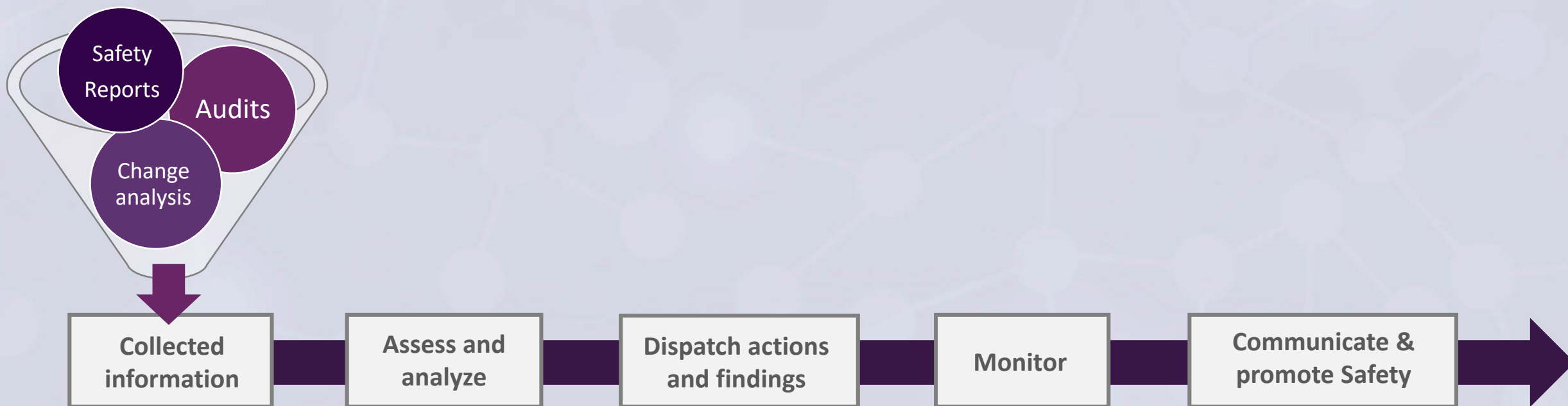


Reliable SPIs through dynamic BowTie






Safety & Compliance WorkFlow





In this purpose, we need first to feed the risk management with safety events.


Confidential


Air safety report form example


Modules


Messages



Export


Back

 **SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations

 **SAFETY CUBE**
AeroBowtie SMS & Compliance

📍 Position of the event

ASR

* : Fields required

This document is intended to pilots only. Its goal is to describe all types of events that could be reported during the flight. It is confidential. It will be sent to the authorities.

1 General information

Redactor :

☐ CAPT ☐ F/O

☐ PF ☐ PM

Flight data readout requested ? ☐ Yes ☐ No

Did you feel time pressure ? ☐ Yes ☐ No

Event linked to fatigue ? ☐ Yes ☐ No

Title* :

Emergency Landing / Hydraulic Failure

Event date*
2018-05-08

Time UTC*
10

00

State/Area of occurrence*
Other

If applicable, ICAO code of the airport where the event took place (ex: LFAA, HAAA)
To be filled if the event took place in the airport

Africa

Location on/near the airport
Other

Location name* (waypoint, geographic coordinates...)
Waypoint 1

Aircraft type*

Aircraft registration*

FINDINGS (1) RISKS (0) ACTIONS (2) ATTACHMENTS (0) MESSAGES (1) NOTES

Edit

Reference
OCC-2018-5/0001

Site
Headquarters

Deadline

Next deadline
At 2018-05-15

Status
Open
By Eric Boucher
At 2018-05-07

Requested Answer
☐ Yes ☒ No


Type


Notification
☒ Yes ☐ No
From safety-line-amal
At 2018-05-08


Modifications
Show history





Air safety report form example


Modules


Messages


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**SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations

Flight phase*

Last departure airport (ICAO code)*

Tech Form Nr

Planned destination (ICAO code)*

A/C Gross Weight (t)

TAT/SAT

2 Description*

Scenario of the event, weather, light, warnings, operational consequences, air-ground communication... and all elements that could help to understand the situation.

☒ Language: tick the checkbox if you write in english

During cruise, postional control were becoming hard. Hydraulic problem was detected. Tried to reestablish hydraulic with no success.

Pergormed emergency landing on an empty parking.

No wounded, nor material damages

3 Event type

☐ Icing☐ Aircraft upset

☐ Lightning☐ Aircraft handling

FINDINGS (1)


RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)

NOTES

 Edit

Reference

Site


Deadline
Next deadline
At
[Details](#)

Status
Open
By
At
[Details](#)

Requested Answer
☐ Yes ☒ No
Type


Notification
☒ Yes ☐ No
From
At
[Details](#)

Modifications

**SAFETY CUBE**
AeroBowtie SMS & Compliance



Air safety report form example

**SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations

Modules

Messages 3

Export

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3 Event type

<input type="checkbox"/> Icing	<input type="checkbox"/> Aircraft upset
<input type="checkbox"/> Lightning	<input type="checkbox"/> Aircraft handling
<input type="checkbox"/> Volcanic ash	<input type="checkbox"/> Aerodrome maintenance
<input type="checkbox"/> Wake turbulence	<input type="checkbox"/> Ground handling services
<input type="checkbox"/> Weather turbulence	<input type="checkbox"/> Incursion
<input type="checkbox"/> Weather encounters related event (excluding airport)	<input type="checkbox"/> Loss of separation
<input type="checkbox"/> Weather encounters related event (near airport)	<input type="checkbox"/> Airspace infringement
<input type="checkbox"/> Aircraft damage caused by foreign object damage (FOD)	<input type="checkbox"/> Wildlife and Birdstrike
<input checked="" type="checkbox"/> Aircraft Maintenance / Technical Failure	<input type="checkbox"/> ATC / Air Navigation Services related event
<input type="checkbox"/> Dangerous goods	<input type="checkbox"/> Fire / Explosion / Fumes / Smoke
<input type="checkbox"/> Safety	<input type="checkbox"/> Decompression
<input type="checkbox"/> Unstable approach	<input type="checkbox"/> Other

4 Weather

Did the weather contribute to the event ?

No

Weather report

Weather real

FINDINGS (1)

RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)

NOTES

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Eric Boucher

At

2018-05-07

Requested Answer

☐ Yes ☒ No

Type

Notification

☒ Yes ☐ No

From


safety-line-amal

At

2018-05-08


Modifications

Show history

**SAFETY CUBE**
AeroBowtie SMS & Compliance



Air safety report form example

**SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations


Modules


Messages 3


Export


Back


☒ Flight cancelled ☐ In flight turn back ☐ Aborted take-off ☐ IFSD


8 Birdstrike 

9 Risk of collision with other aircraft / vehicle 

10 Turbulence 

11 Icing 

12 Lightning 

13 Disruptive passenger report 

14 Analysis

Event status

*If the analysis includes non-textual information (ex: pictures), attach documents to this form when reporting analysis.

Parties informed

☐ DSAC

☐ DSNA or AFIS

☐ Ground handling services

☐ BEA

☐ Maintenance

☐ Aéroport

Classe de l'évènement

To which accident category this event could lead ?

FINDINGS (1)


RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)


NOTES


**SAFETY CUBE**
AeroBowtie SMS & Compliance

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Air safety report form example

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Current domain
Flight Operations

Modules

Messages ³

Export

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14 Analysis

Event status

*If the analysis includes non-textual information (ex: pictures), attach documents to this form when reporting analysis.

Parties informed

<input type="checkbox"/> DSAC	<input type="checkbox"/> DSNA or AFIS	<input type="checkbox"/> Ground handling services
<input type="checkbox"/> BEA	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Aéroport

Classe de l'évènement

To wich accident category this event could lead ?

<input type="checkbox"/> ATM / CNS	<input type="checkbox"/> Powerplant failure or malfunction
<input type="checkbox"/> Birdstrike	<input type="checkbox"/> Security related
<input type="checkbox"/> CFIT	<input type="checkbox"/> Turbulence
<input type="checkbox"/> Airprox / ACAS alert / Loss of separation	<input type="checkbox"/> Windshear or thunderstorm
<input type="checkbox"/> Medical	<input type="checkbox"/> Fuel
<input type="checkbox"/> Navigation error	<input type="checkbox"/> Fire / smoke (no impact)
<input type="checkbox"/> Ground handling	<input type="checkbox"/> Loss of control in flight
<input type="checkbox"/> Runway incursion	<input type="checkbox"/> Abnormal runway contact
<input type="checkbox"/> Runway excursion	<input type="checkbox"/> Abnormal runway contact
<input type="checkbox"/> System / component failure or malfunction [non-powerplant]	<input type="checkbox"/> Unknown or undetermined

FINDINGS (1)

RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)

NOTES

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AeroBowtie SMS & Compliance

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Show history





Air safety report form example


Modules


Messages


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**SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations

☐ Ground handling

☐ Loss of control in flight

☐ Runway incursion

☐ Abnormal runway contact

☐ Runway excursion

☐ Abnormal runway contact

☐ System / component failure or malfunction [non-powerplant]

☐ Unknown or undetermined

☐ Other

15 Analysis results

DSAC information :

Initial notification

In progress

Final notification

16 Mesures to take

FINDINGS (1)

RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)

NOTES

**SAFETY CUBE**
AeroBowtie SMS & Compliance

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Reference
OCC-2018-5/0001

Site
Headquarters

Deadline
Next deadline
At 2018-05-15

Status
Open
By Eric Boucher
At 2018-05-07

Requested Answer
Yes No
Type

Notification
Yes No
From safety-line-amal
At 2018-05-08

Modifications
Show history



ASR linked to Risks

15 Analysis results

DSAC information :

Initial notification

In progress

Final notification

16 Mesures to take

FINDINGS (1)

RISKS (0)

ACTIONS (2)

ATTACHMENTS (0)

MESSAGES (1)

NOTES

Open

By Eric Boucher

At 2018-05-07

Requested Answer

☐ Yes ☒ No

Type

Notification

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From safety-line-amal

At 2018-05-08

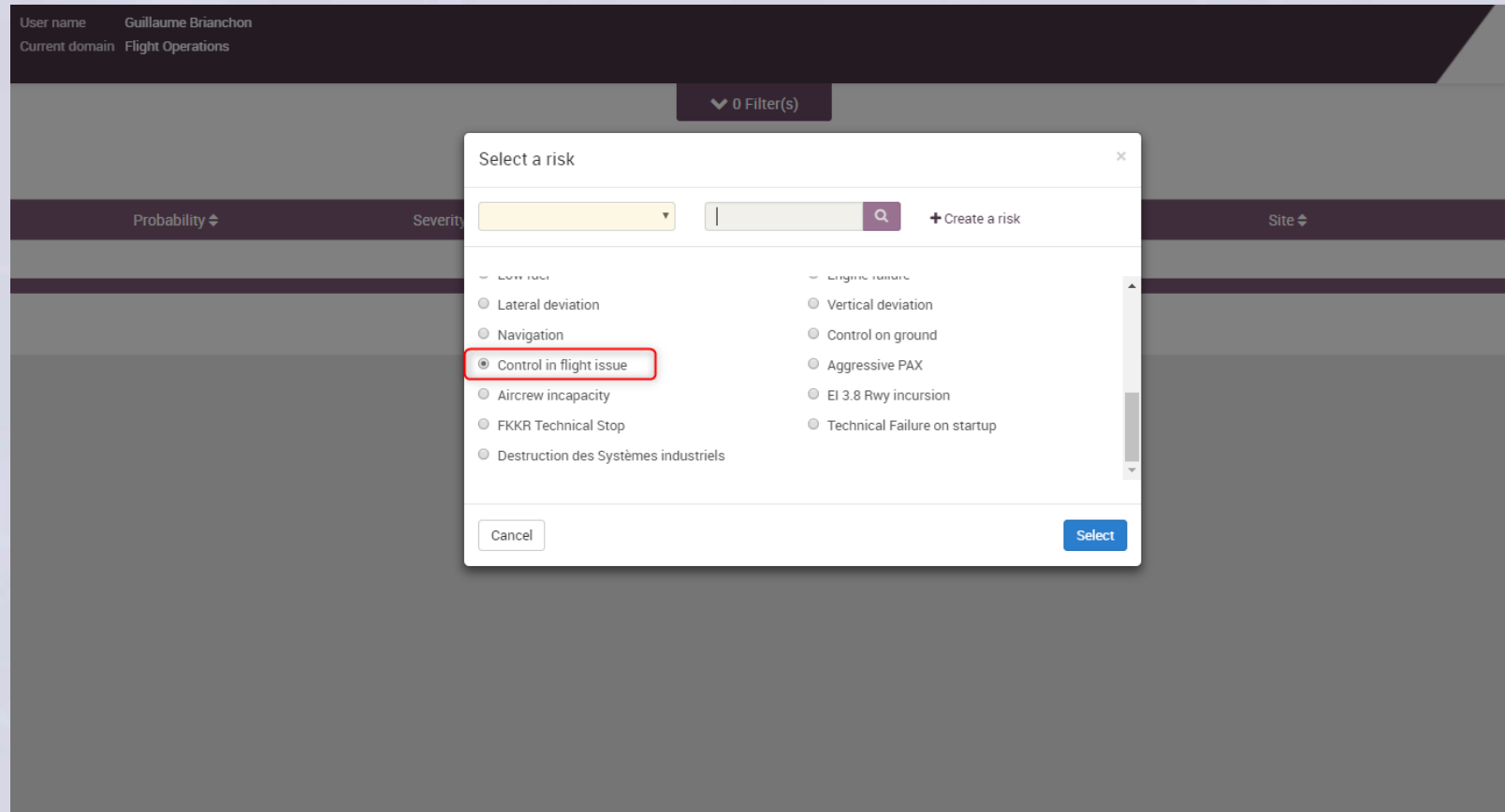
Details

Modifications

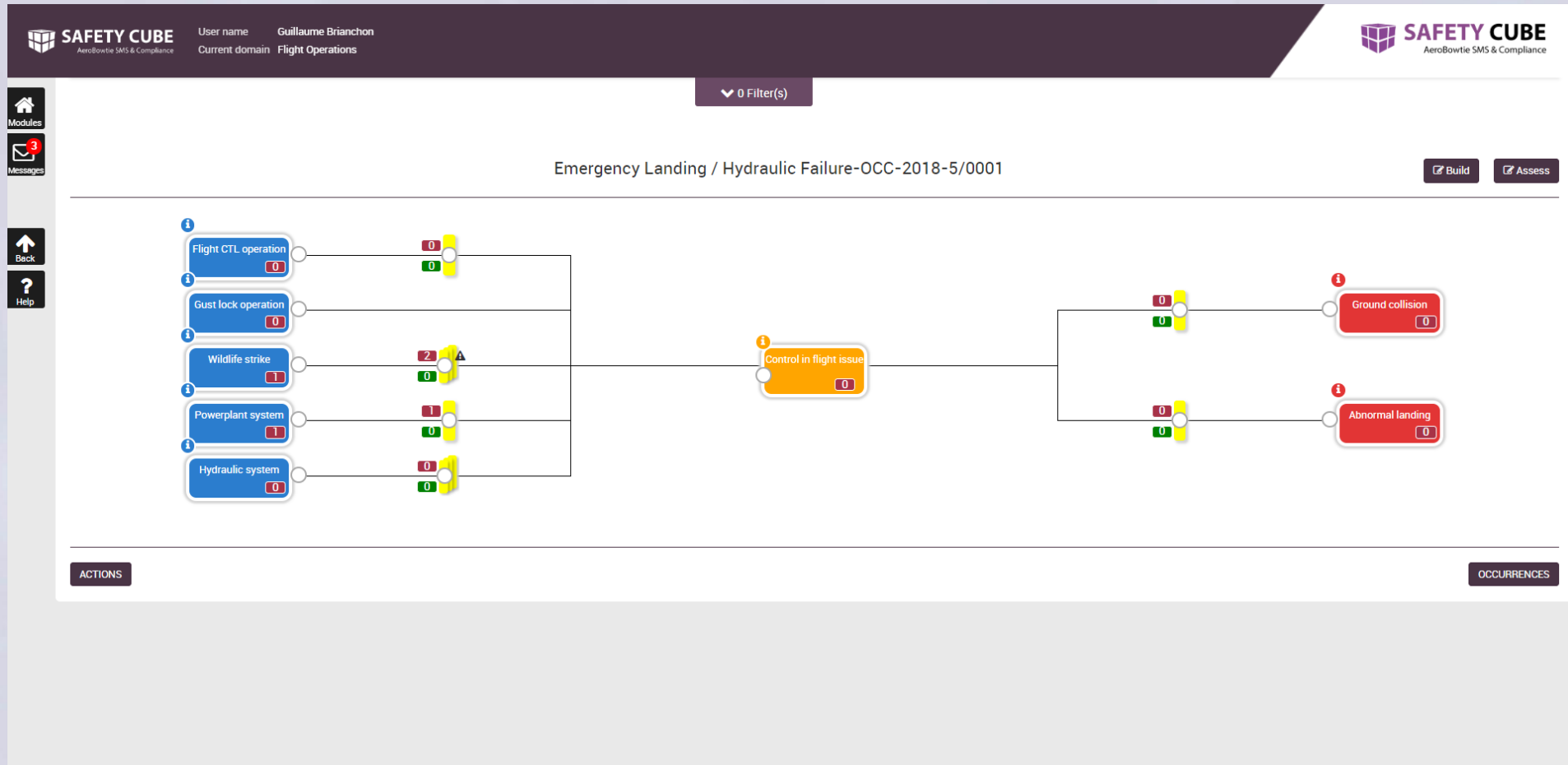
Show history



The risk related to the ASR



Risk cartography - BowTie



Is the UE occurred in this event ?

▼ 0 Filter(s)

Aircraft controllability in flight ×

Description

Aircraft controllability in flight

Notes

Status

N/A ☐ Occurred in the event ☒

Comments

Cancel Save



Which hazard ?

The screenshot displays the SAFETY CUBE interface, which is used for hazard analysis. The top header shows the user name "Guillaume Brianchon" and the current domain "Flight Operations". The left sidebar contains navigation icons for Modules, Messages (3), Back, and Help. The main area shows a list of systems on the left, each with a status indicator (red and green numbers) and a corresponding hazard box on the right. The "Hydraulic system" is highlighted with a red box and a red arrow pointing to its details. The details for the "Hydraulic system" are shown in a modal window titled "(ATA 29) Hydraulic system".

SAFETY CUBE
AeroBowie SMS & Compliance

User name: Guillaume Brianchon
Current domain: Flight Operations

0 Filter(s)

(ATA 29) Hydraulic system

Description
(ATA Code:2900) An event involving the units and components which furnish hydraulic fluid under pressure to a common point (manifold) for re-distribution to other defined systems.

Notes

Status
N/A ☐ Occurred in the event ☒

Comments

Cancel Save

Build

SAFETY CUBE
AeroBowie SMS & Compliance

Flight CTL operation
Gust lock operation
Wildlife strike
Powerplant system
Hydraulic system

0
0
2
0
0

0
0
0
0
0

Ground collision
Abnormal landing

CANCEL **SAVE**



Efficient / Not efficient defense(s)?

The screenshot displays the SAFETY CUBE interface, which is used for AeroBowie SMS & Compliance. The user is Guillaume Brianchon, and the current domain is Flight Operations. A modal window titled "List of defenses" is open, showing a search bar with "Airline Management" and a search icon. Below the search bar, there is a list of defenses under the "Engineering/Design" category. The selected defense is "Hydraulic indic.", which has a status of "Non effective" and a count of 0. The modal also includes a "Description" field with the text: "(ATA Code:2930) Hydraulic system indicating system: The hydraulic pressure and quantity indicating system parts other than the indicator or sensor or for parts common to both pressure and quantity systems." and a "Notes" field. The "Status" section shows "N/A", "Effective", and "Non effective" (selected). The "Comments" field is empty. The modal has "Cancel" and "Save" buttons. In the background, the main interface shows a list of modules: Flight CTL operation, Gust lock operation, Wildlife strike, Powerplant system, and Hydraulic system. The Hydraulic system is highlighted with a red 'X' icon. On the right side, there are two red boxes labeled "Ground collision" and "Abnormal landing" with information icons.

SAFETY CUBE
AeroBowie SMS & Compliance

User name: Guillaume Brianchon
Current domain: Flight Operations

0 Filter(s)

Build

Modules

Messages

Back

Help

Flight CTL operation

Gust lock operation

Wildlife strike

Powerplant system

Hydraulic system

CANCEL

List of defenses

Airline Management

Engineering/Design

Hydraulic indic.

Description

(ATA Code:2930) Hydraulic system indicating system: The hydraulic pressure and quantity indicating system parts other than the indicator or sensor or for parts common to both pressure and quantity systems.

Notes

Status

N/A Effective Non effective

Comments

Cancel Save

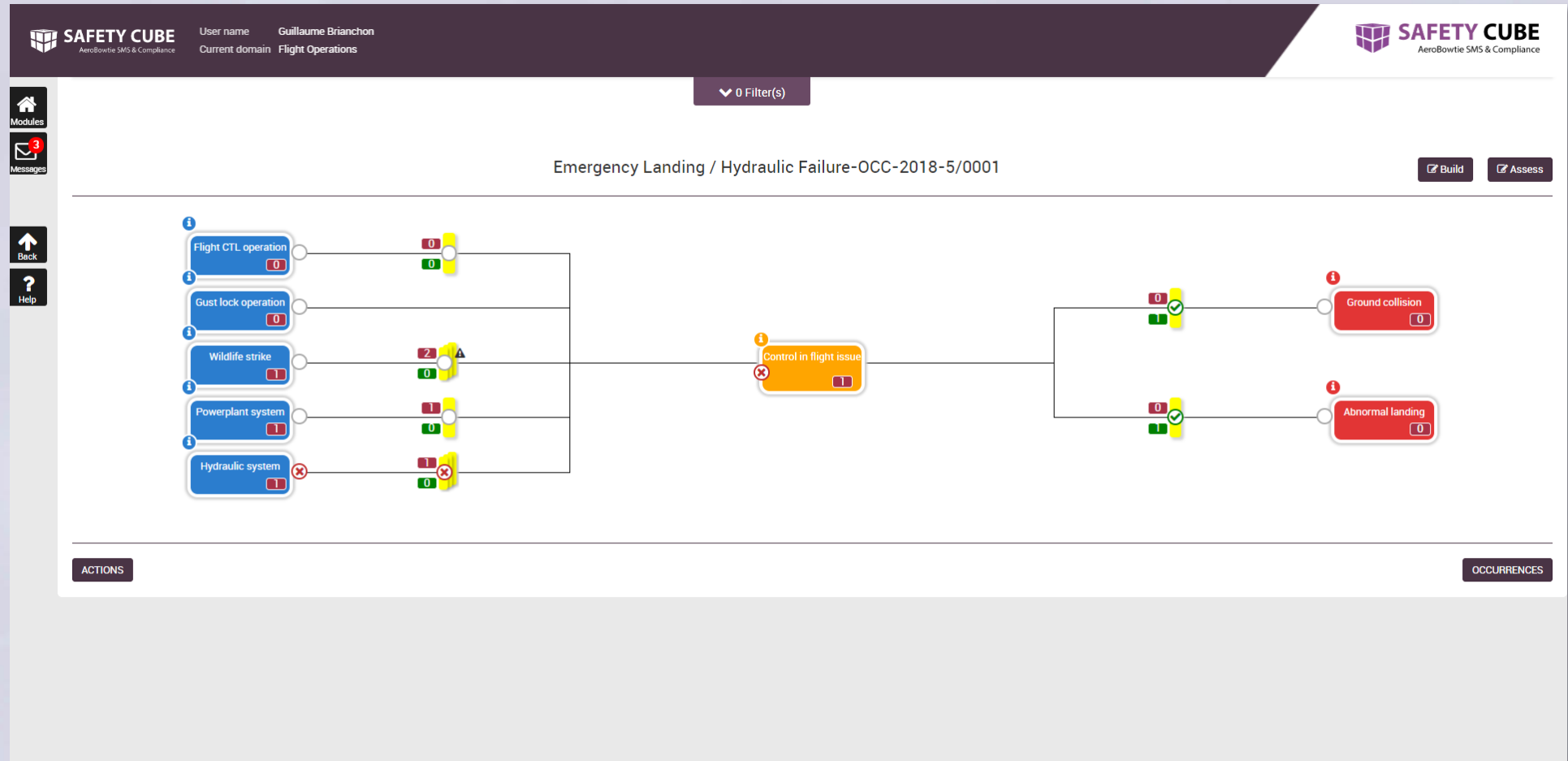
Ground collision

Abnormal landing

SAVE



The assessed risk



Not efficient → action ?

0 Filter(s)

List of defenses

Airline Management

Engineering/Design 0 0

Hydraulic Indic. 1 0

Actions

Description
(ATA Code:2930) Hydraulic system indicating system: The hydraulic pressure and quantity indicating system parts other than the indicator or sensor or for parts common to both pressure and quantity systems.


Notes

Status
N/A ☐ Effective ☐ Non effective ☒

Comments




Action on Not efficient defense

 **SAFETY CUBE**
AeroBowtie SMS & Compliance

User name
Guillaume Brianchon

Current domain
Flight Operations

 **SAFETY CUBE**
AeroBowtie SMS & Compliance

Modules

Messages ³

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Help

Action followup

1 Summary

Defense

Hydraulic indic.

Assigned to

Amal FELFEL

Origin

Emergency Landing / Hydraulic Failure

Extension date

Deadline

2019-03-20

2 Action

Title

Replace Hydraulic Indicating System

Description

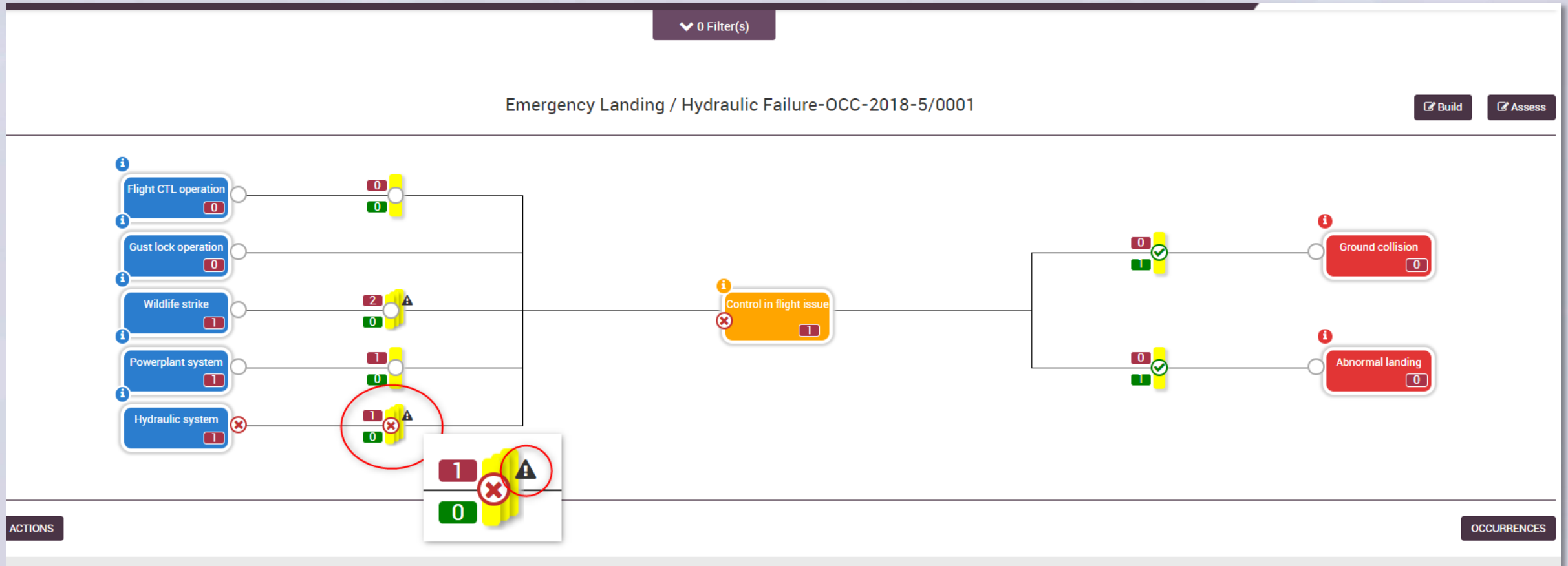
Following event [...] please proceed to a full maintenance for all hydraulic indicating systems.
[...]

CANCEL

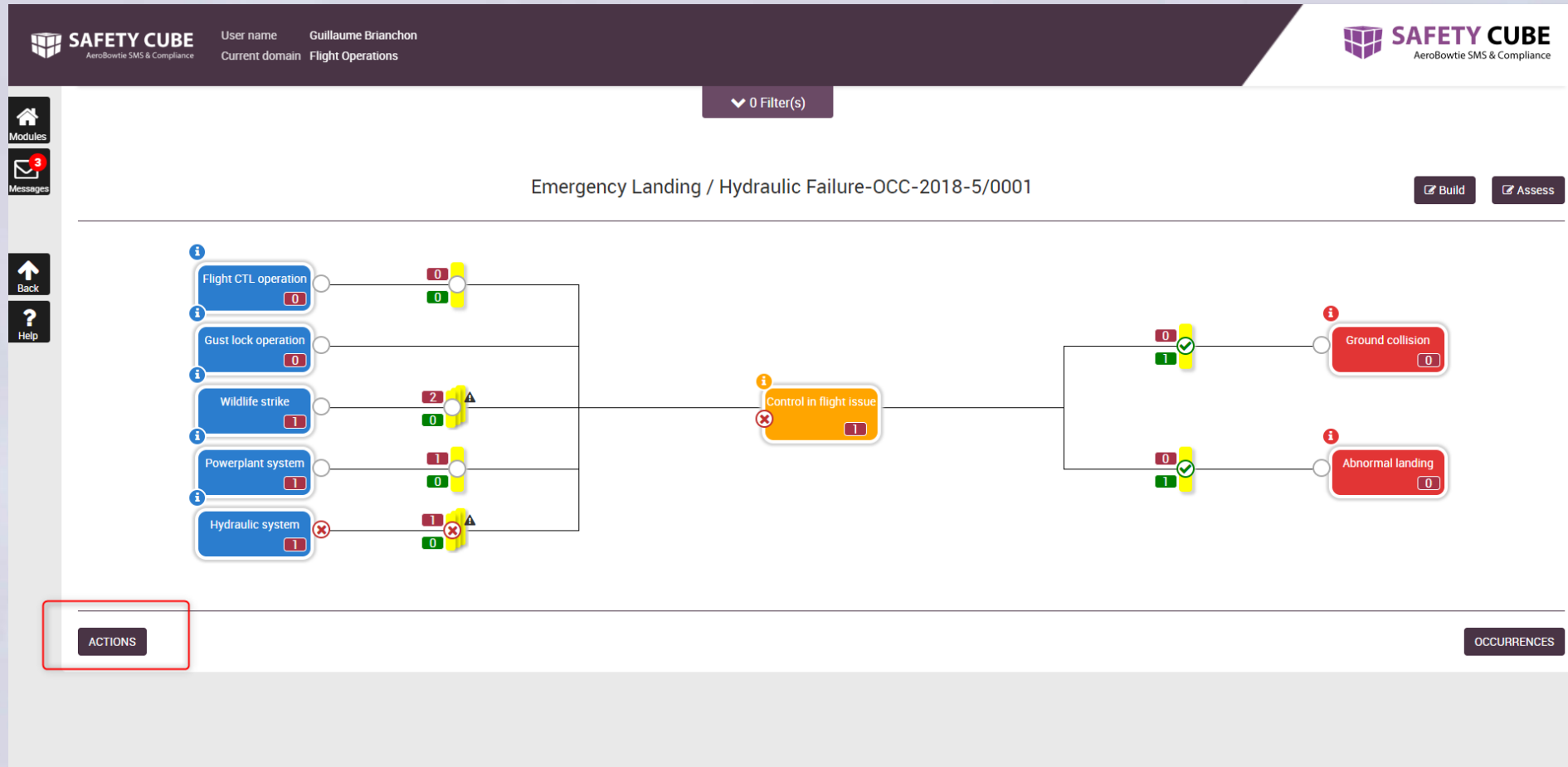
SAVE




DYNAMIC BowTie – open actions





Actions related to this risk





All actions related to this risk


Modules


Messages


Export


Help




User name

Guillaume Brianchon

Current domain







Flight Operations



SAFETY CUBE


AeroBowtie SMS & Compliance

Safety occurrence

Delay ▾	Deadline ▾	Ref. ▾	Defense ▾	Occurrence ▾	Title ▾	Addressee ▾	Status ▾	
	2018-05-16	ACT-2018-5/0002	Hydraulic indic.	OCC-2018-5/0001	Training refreshment	safety-line-amal	Closed	
	2018-05-03	ACT-2018-5/0001	Training/Qualification	O-0154	Formation éffarouchement	Wildlife_resp	Open	
	2019-03-20	ACT-2019-3/0001	Hydraulic indic.	OCC-2018-5/0001	Replace Hydraulic Indicating System	safety-line-amal	Open	

Element(s) : 3 (3 per page)

<< < 1 / 1 > >>

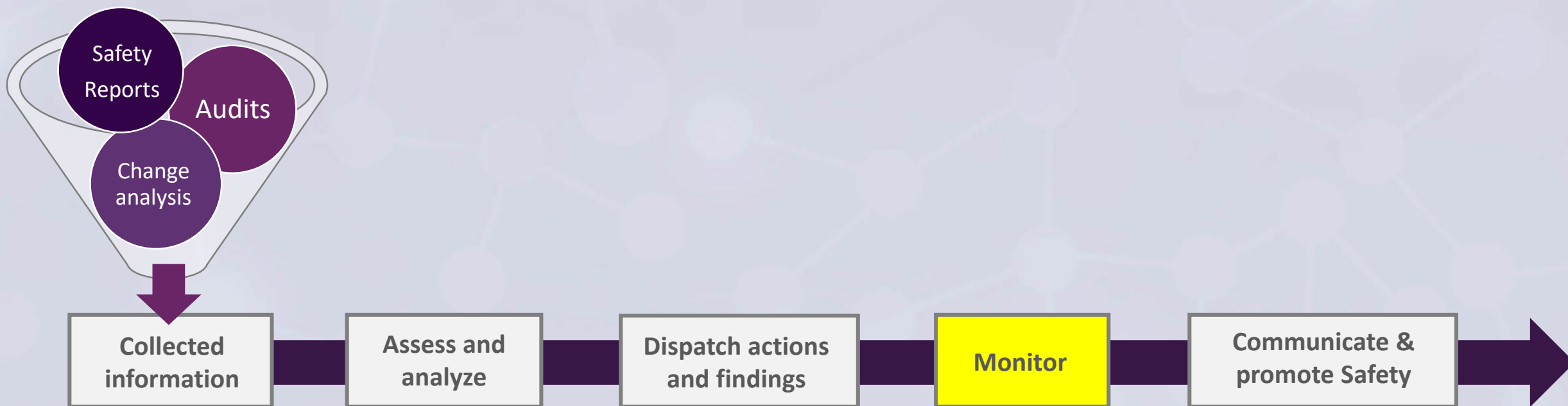


SAFETY LINE

Big Data applied to Aviation



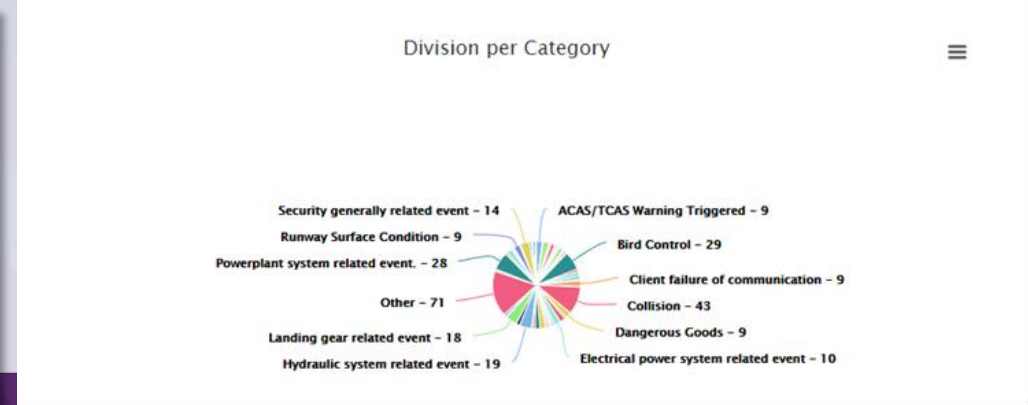
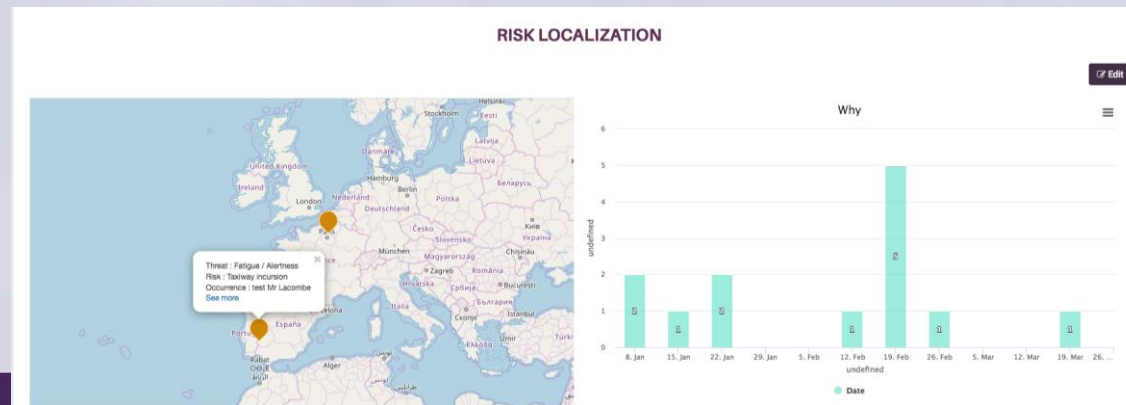
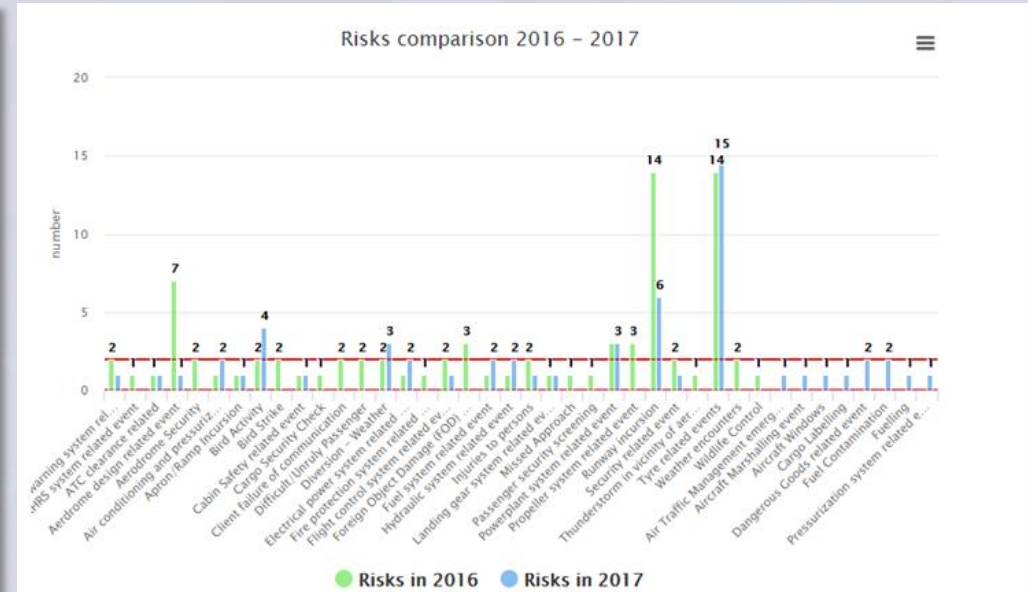
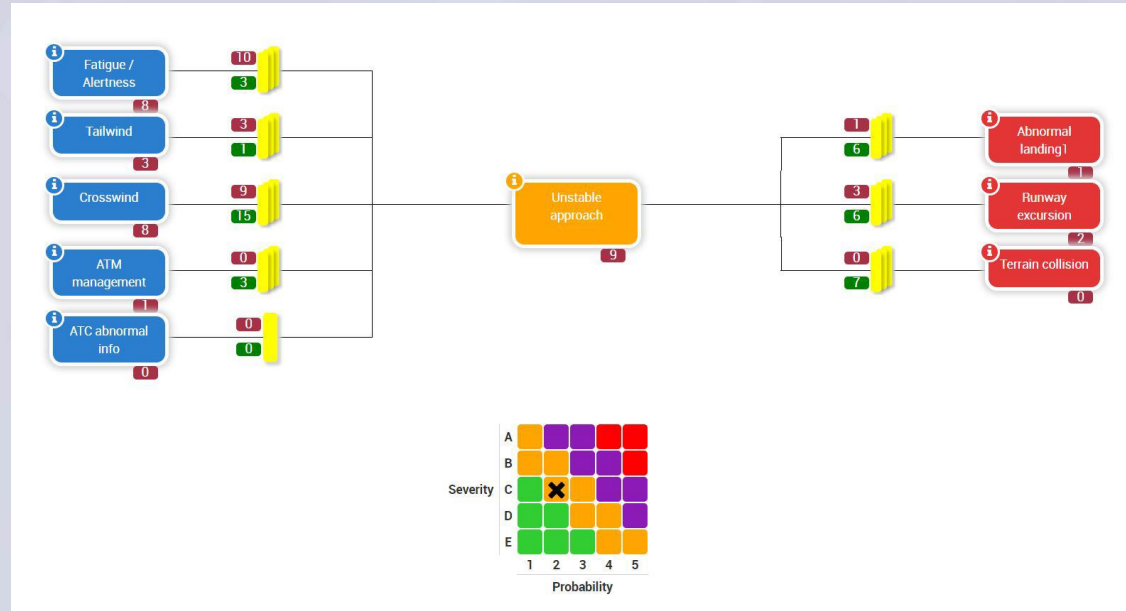
Safety & Compliance WorkFlow



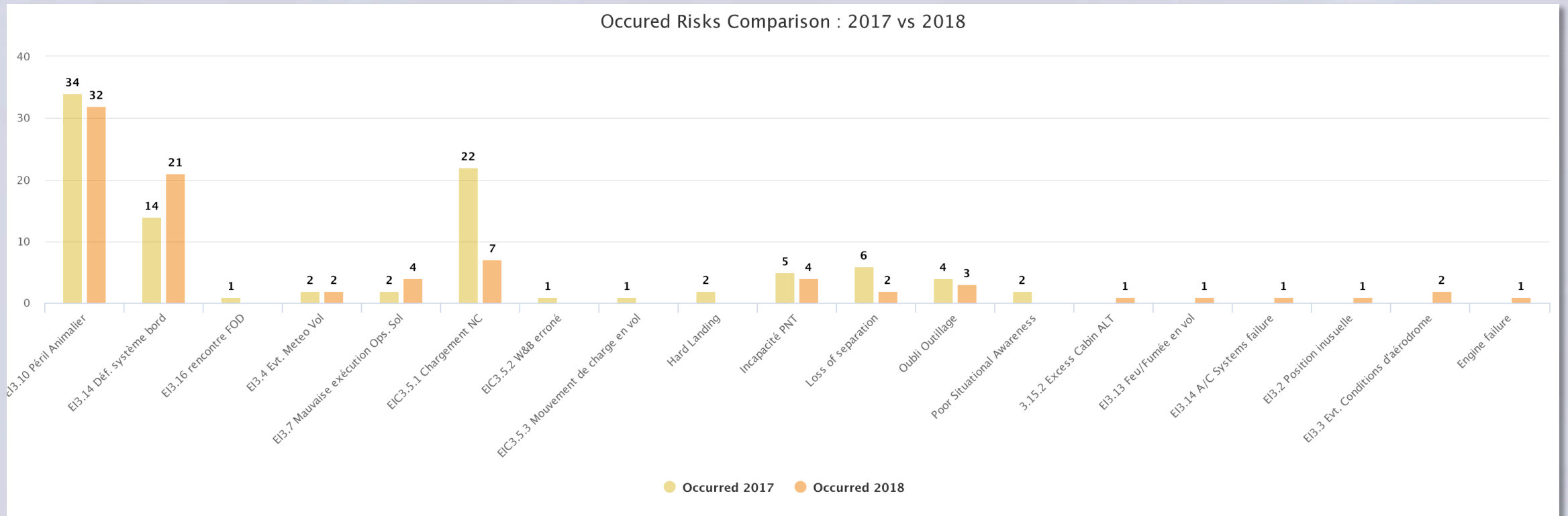
Helps in risk measurements!

Confidential

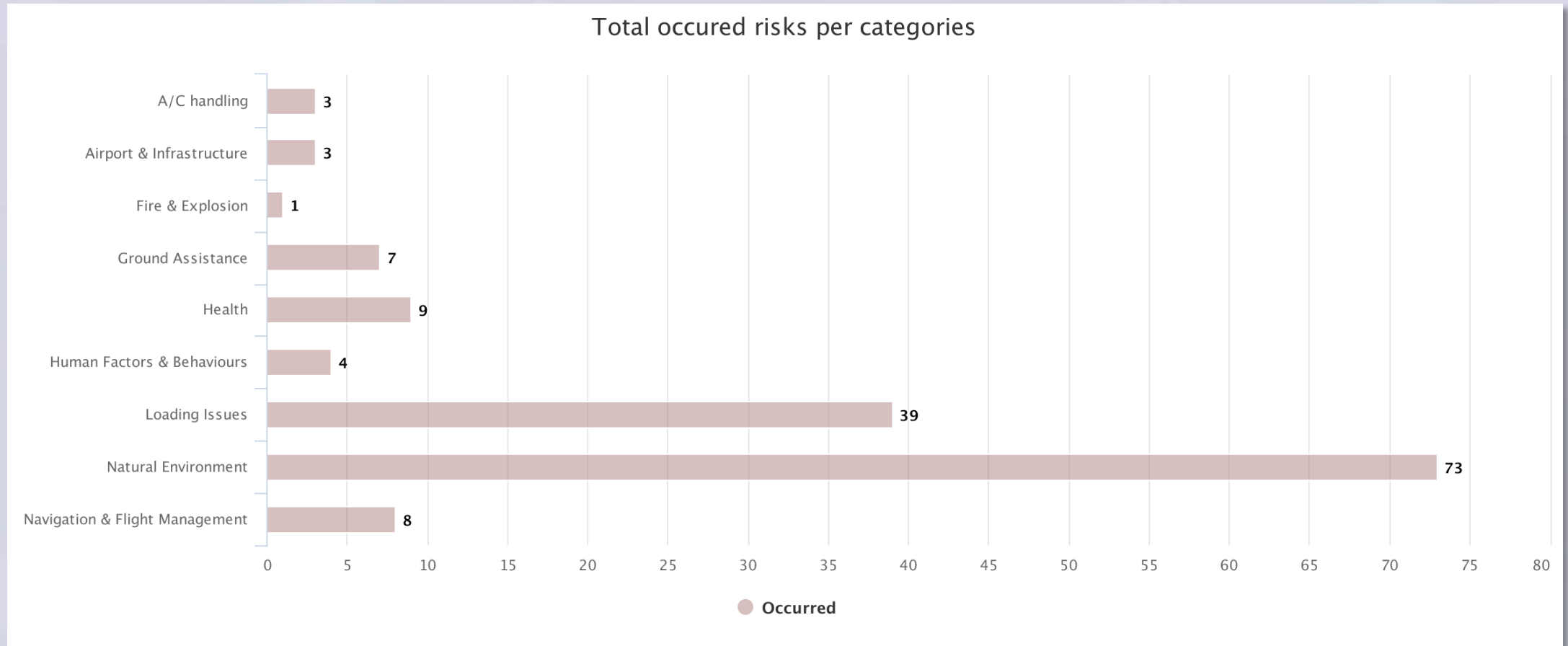
Reliable SPIs → Efficient risk measures



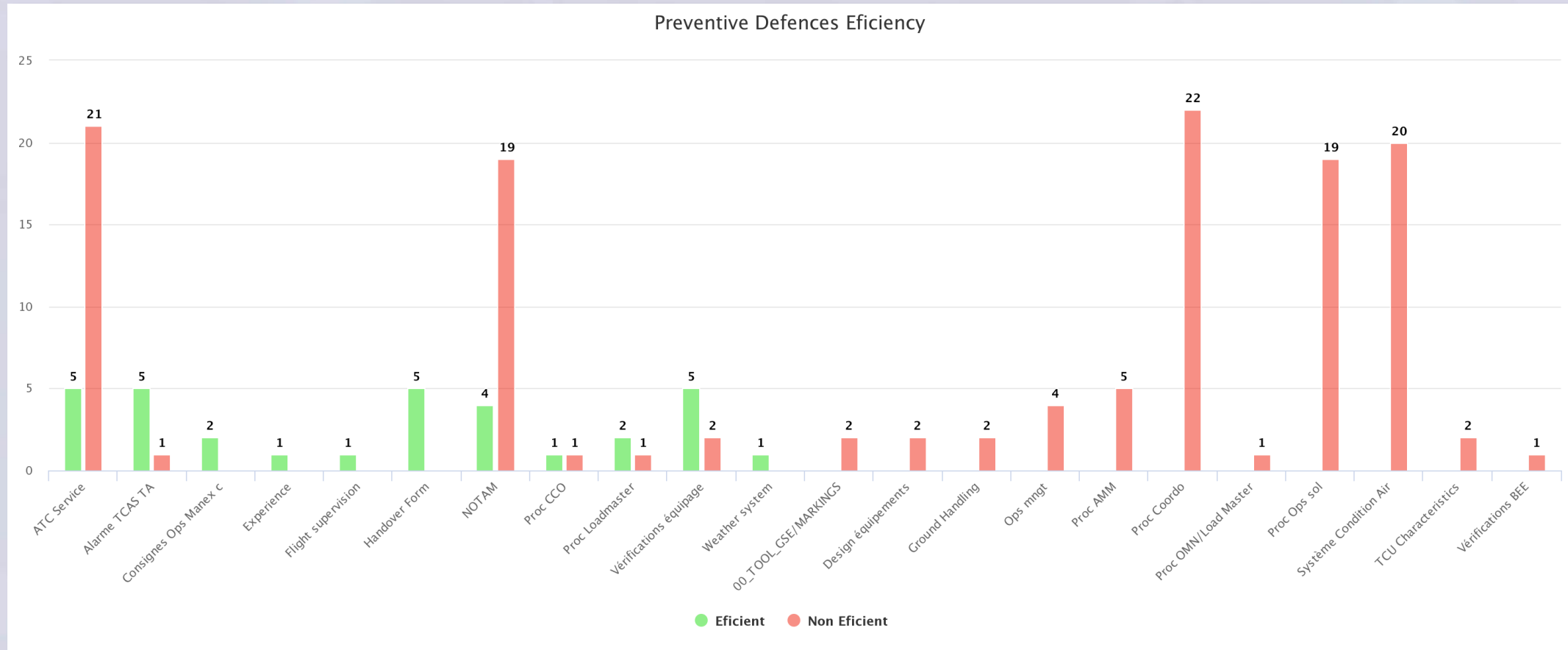
Reliable SPIs Exp 1



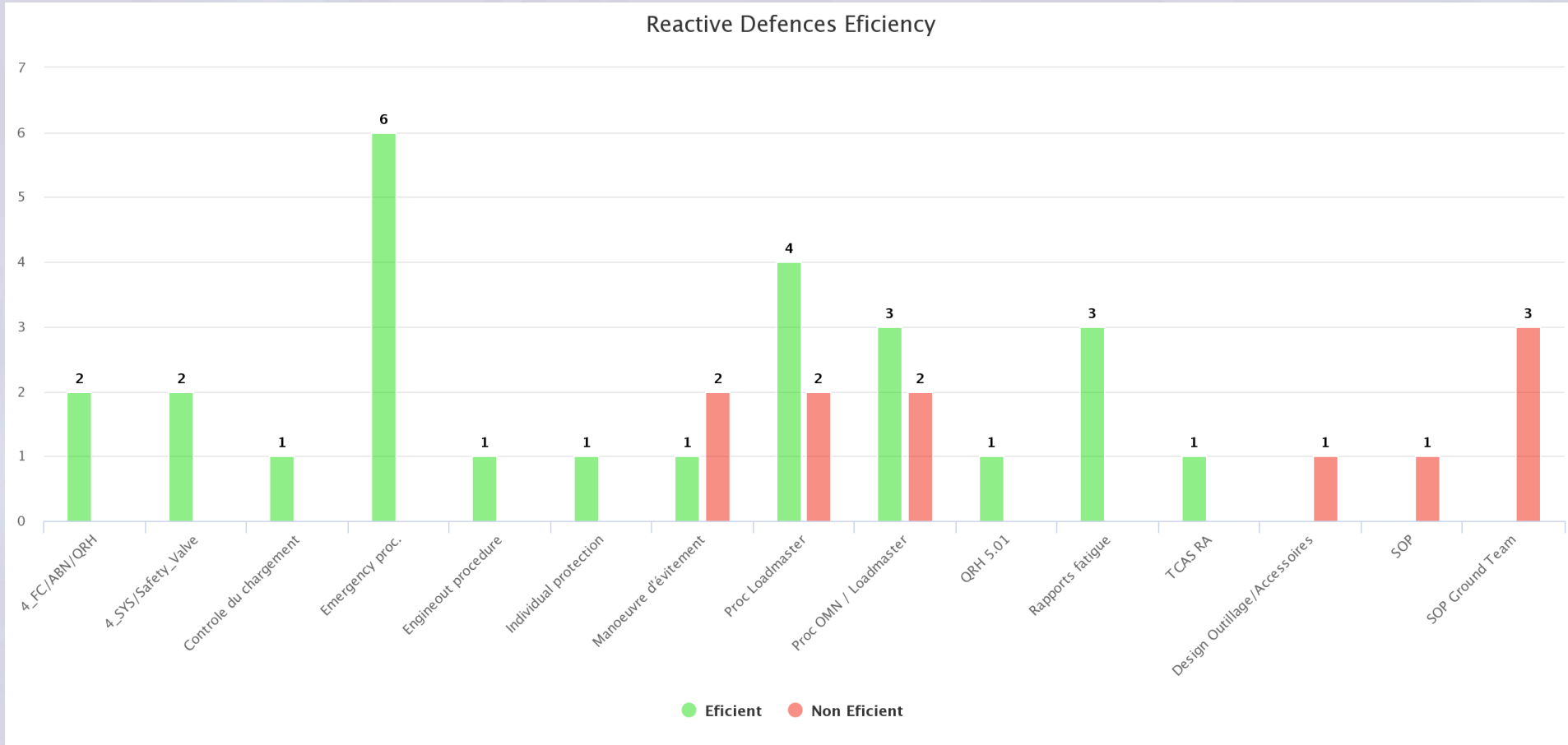
Reliable SPIs exp 2



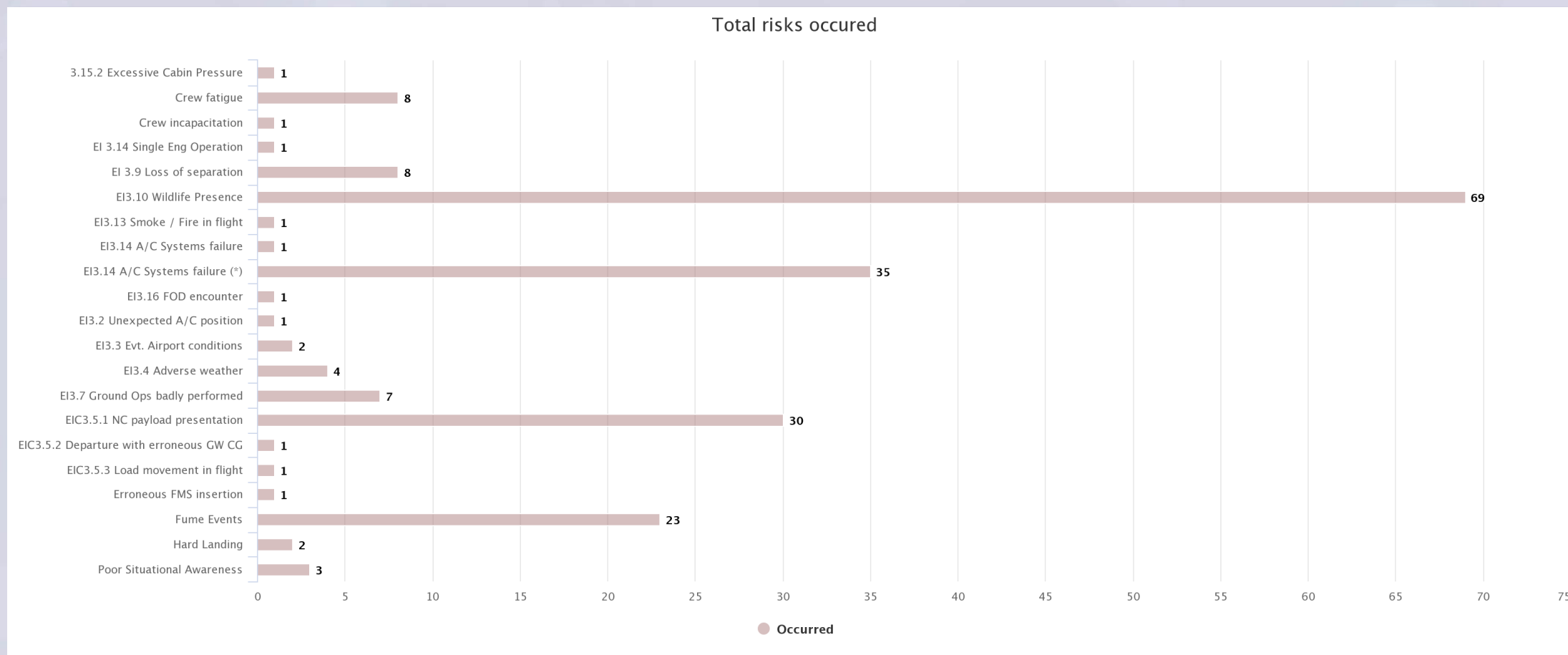
Reliable SPIs Exp 3



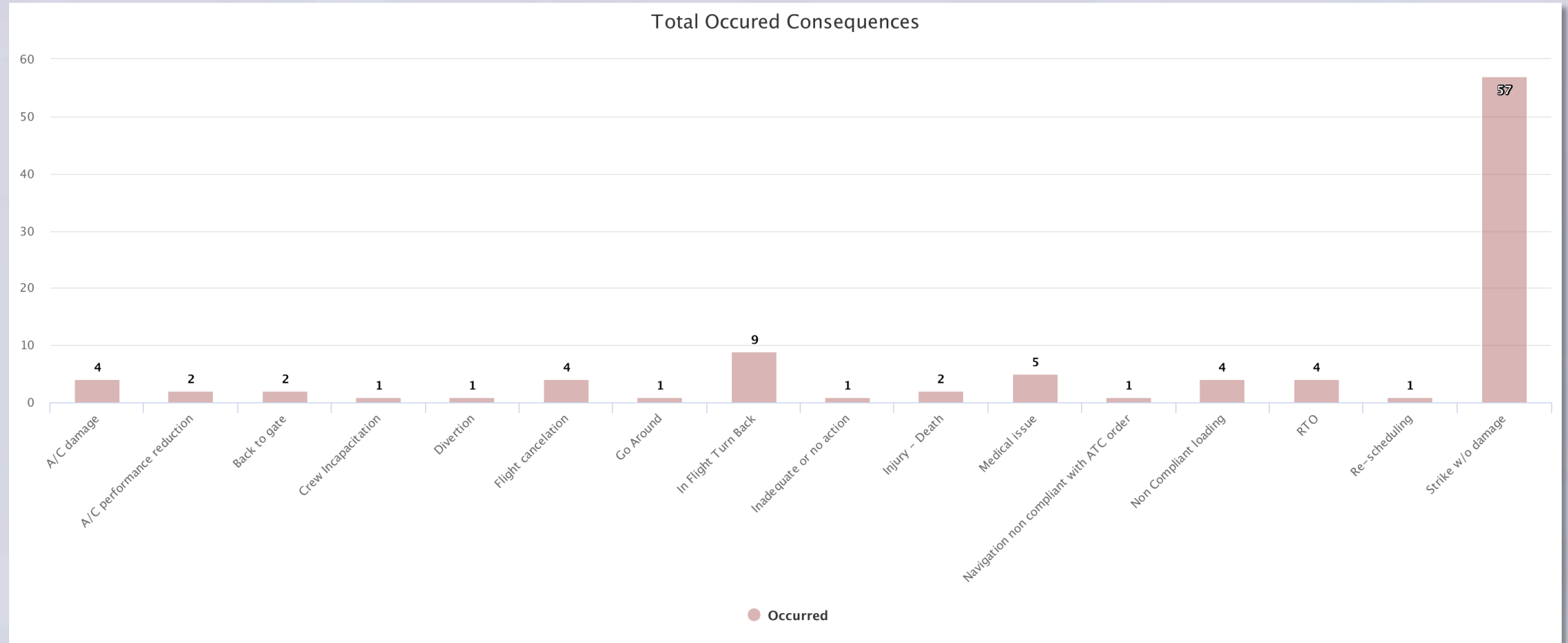
Reliable SPIs exp 4



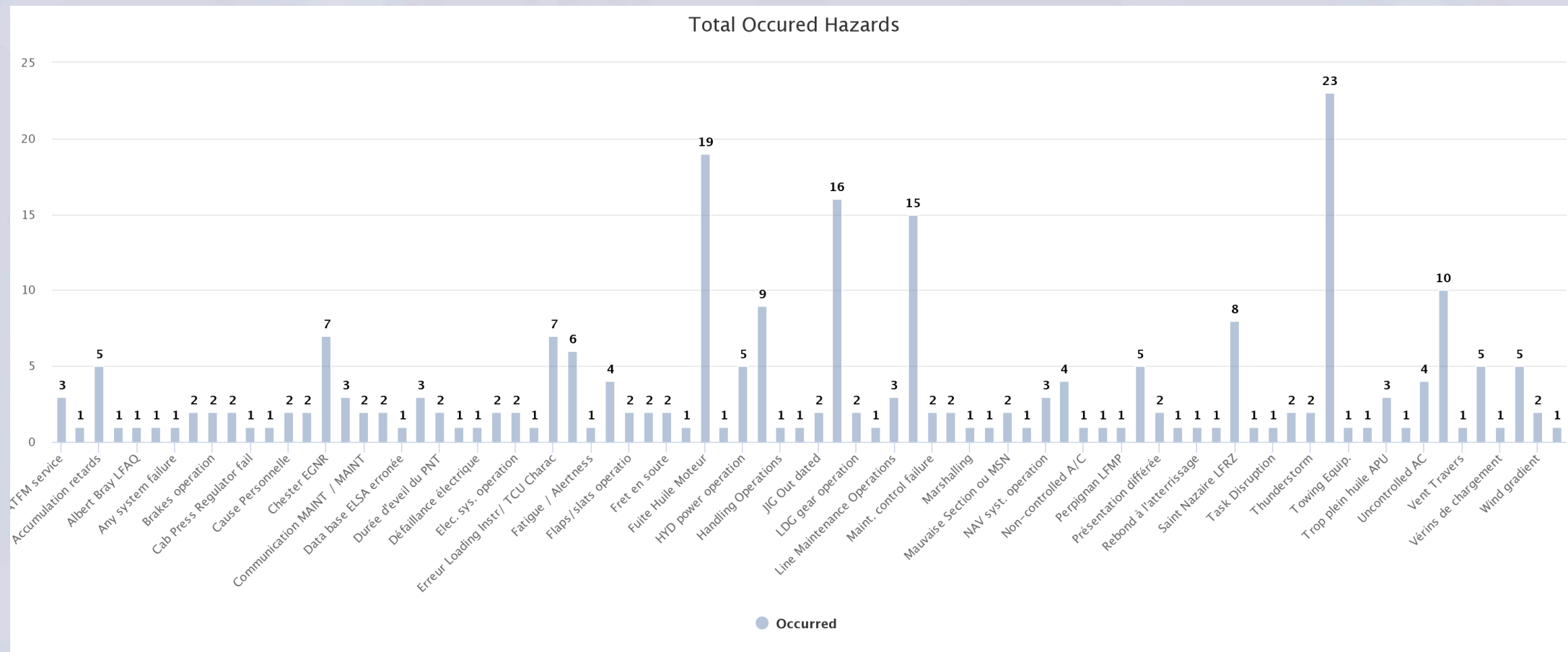
Reliable SPIs exp 5



Reliable SPIs exp 6



Reliable SPIs exp 7



Reliable SPIs exp 8

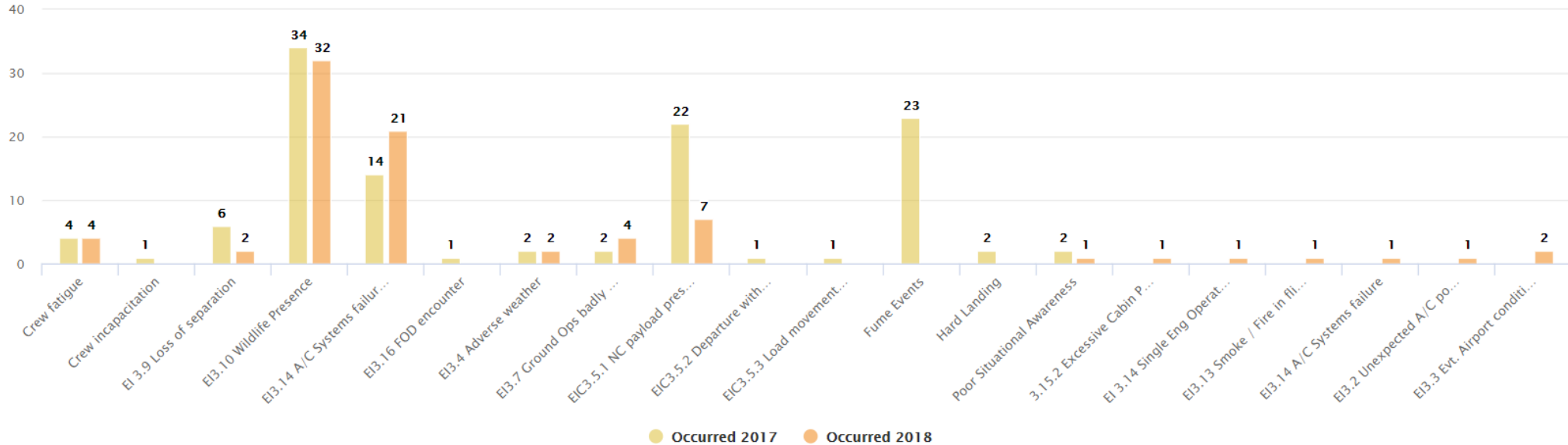


Nom d'utilisateur Romain Boislevé
Domaine actuel OPS ATI V2



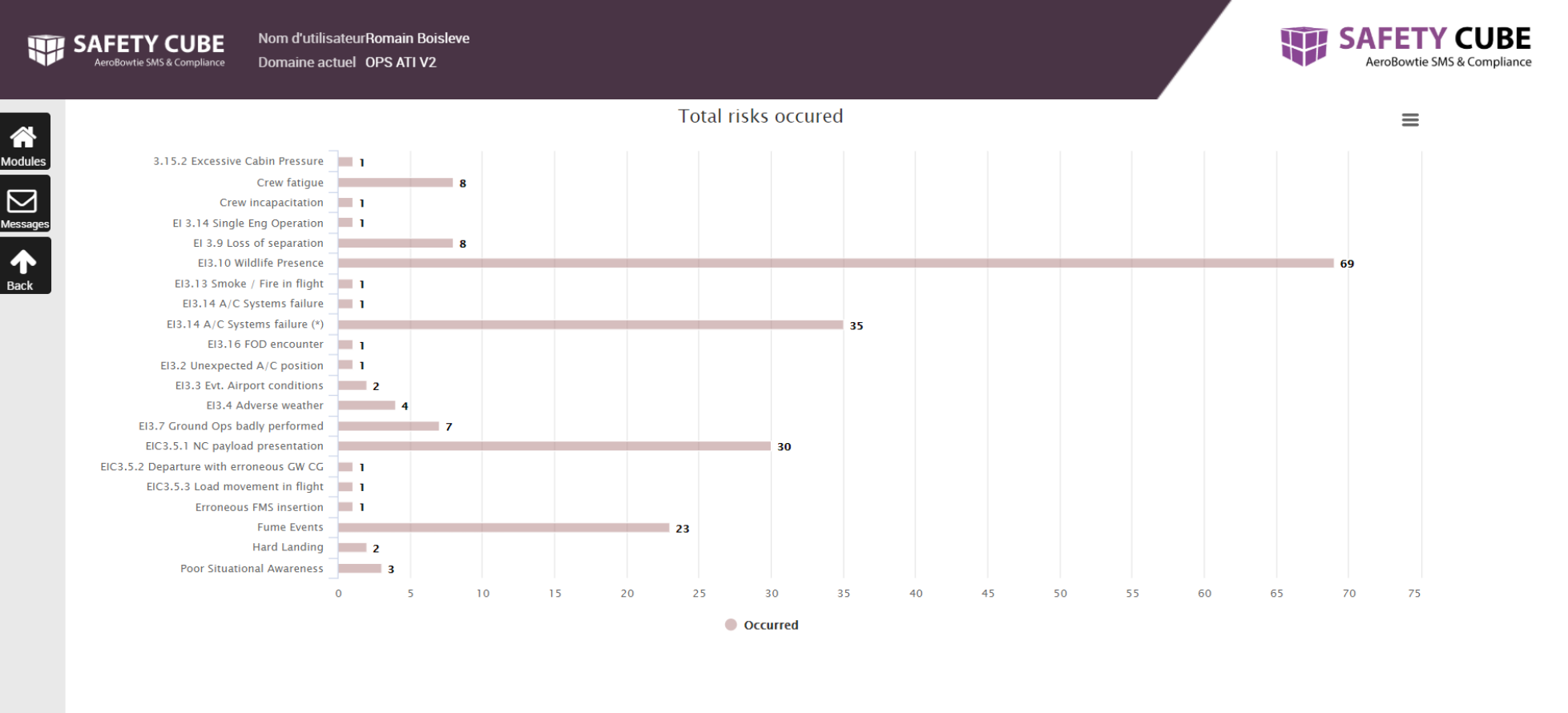
- Modules
- Messages
- Back

Occured Risks Comparison : 2017 vs 2018

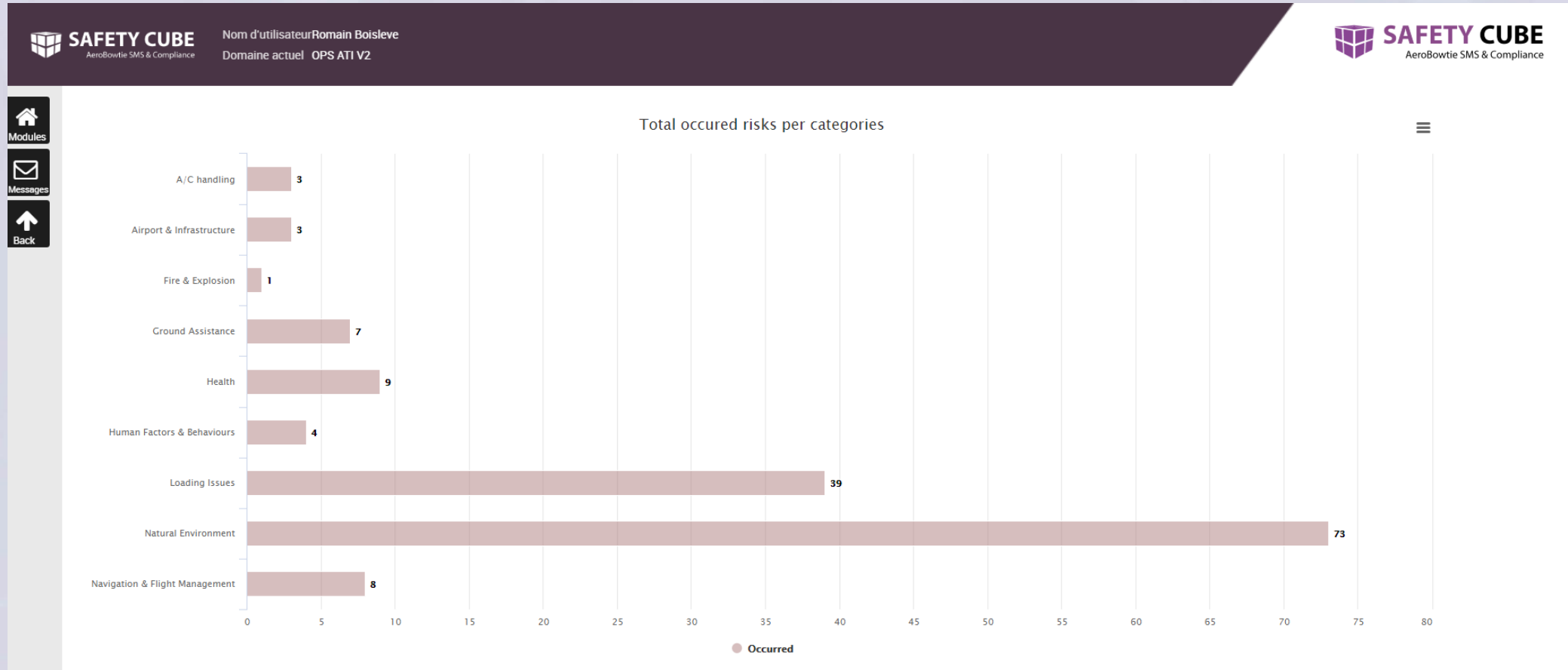


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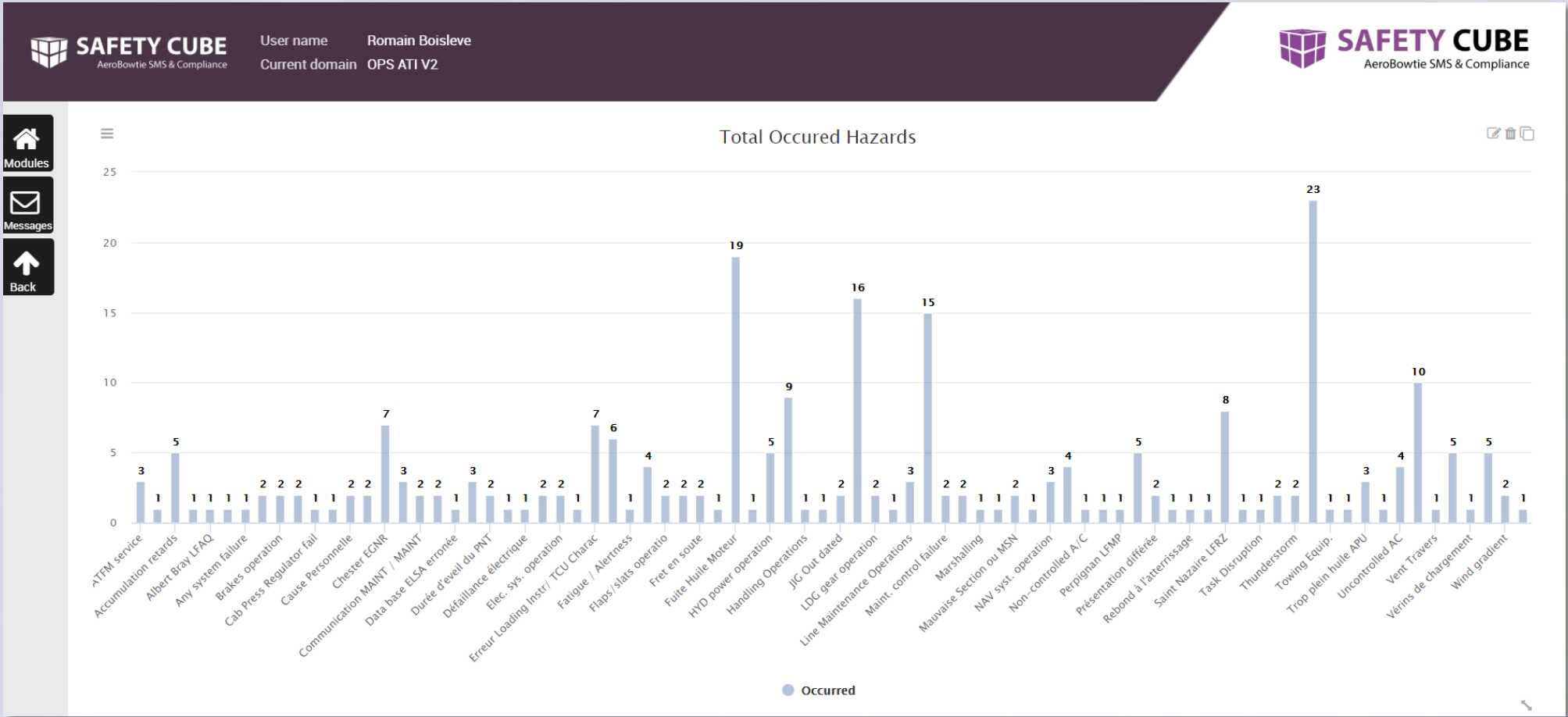
Reliable SPIs exp 9



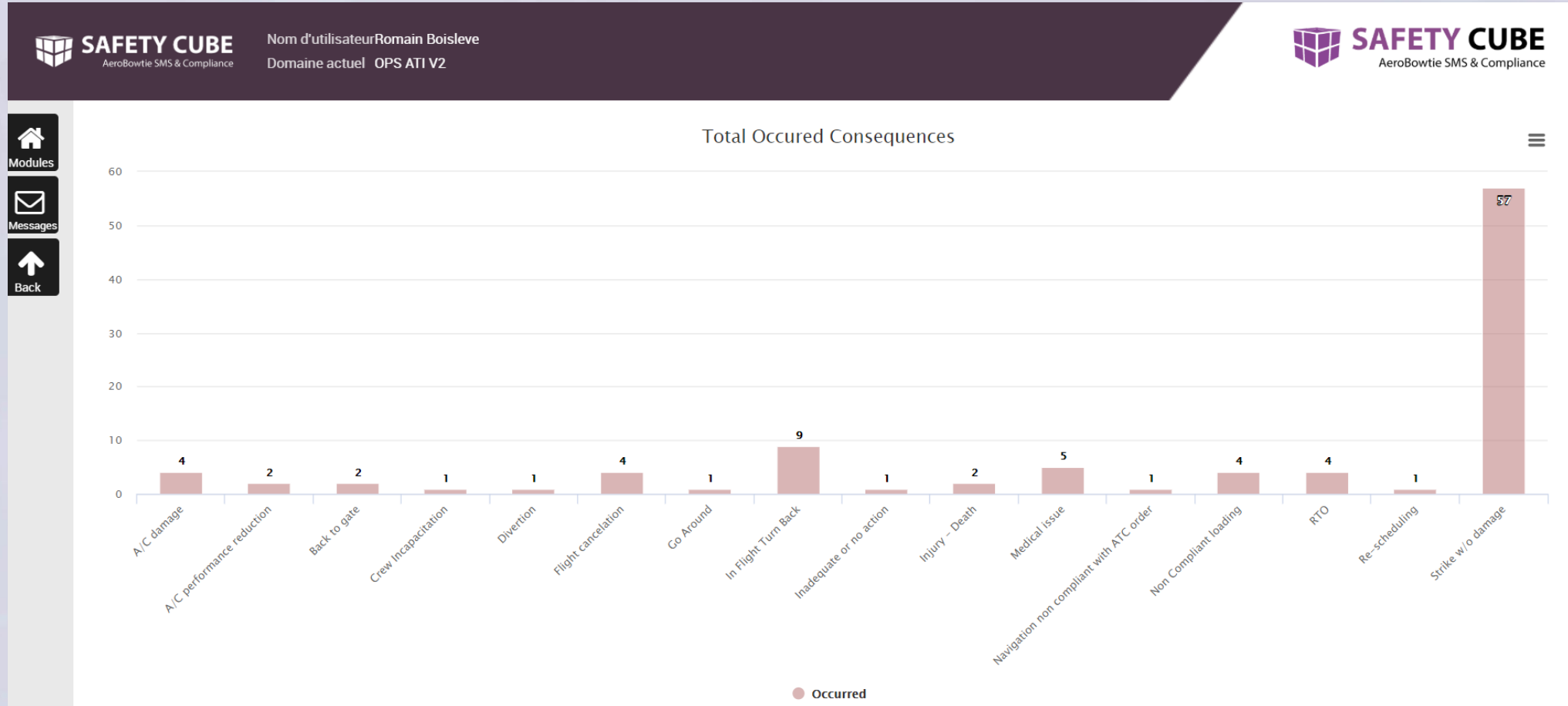
Reliable SPIs exp 10



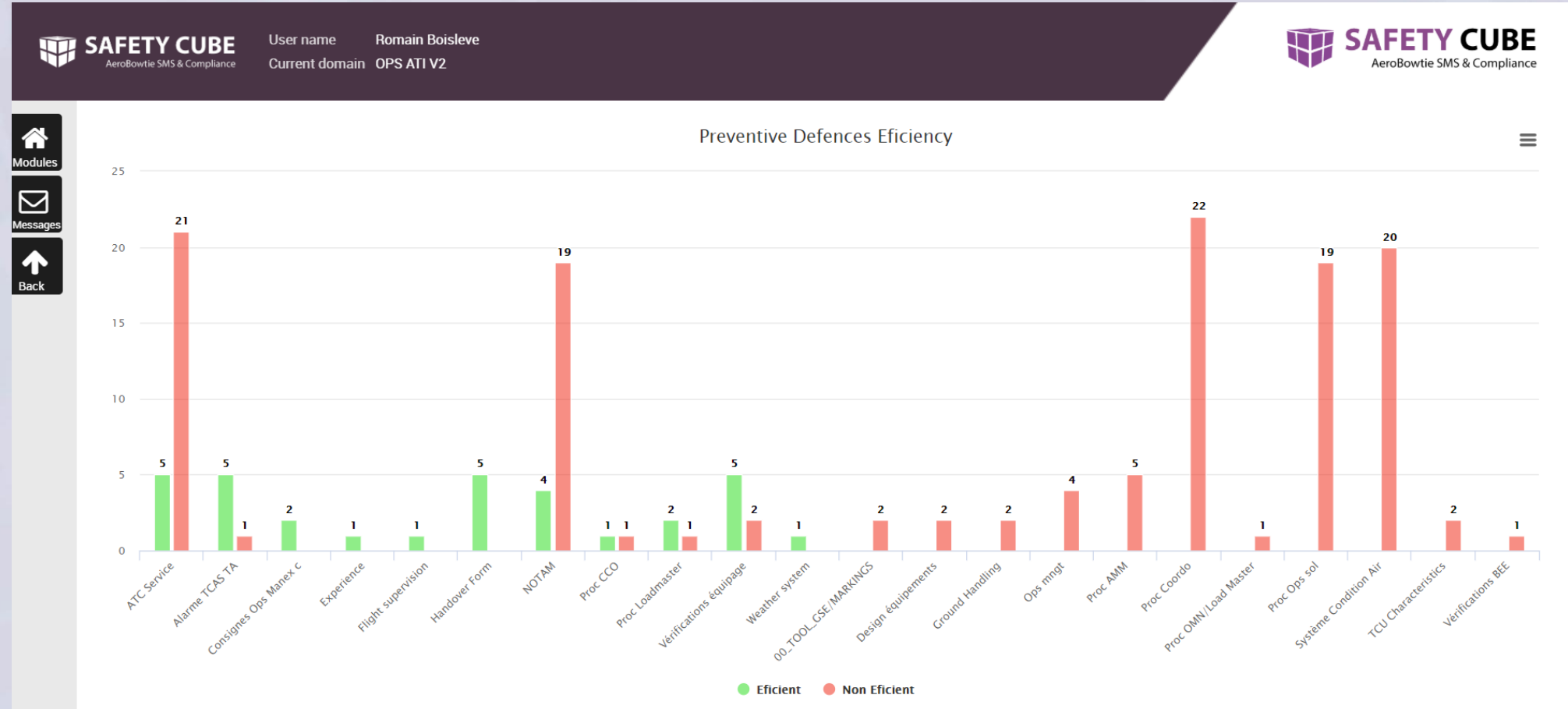
Reliable SPIs exp 11



Reliable SPIs exp 12



Reliable SPIs exp 13



Reliable SPIs exp 14



Air operators efficient tool usage

Risk management tool has to be:
Complete but ...Simple to use for daily operations!



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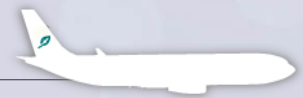
SAFETY LINE

Big Data applied to Aviation

Thank you for your attention!

Amal FEFEL - Business Development Manager

Amal.fefel@safety-line.fr



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