“How to bring advantages of BowTies to the Organisation”
Presenting a case of the UK MAA, Learning from Incidents with SIR

Geert van Loopik
Global Account Manager & Trainer

Started in 2004

We make barrier based risk management software.

Market leader in 11 industries

80-90 Events each year

1500+ clients in 83 countries

20-30% annual growth in the last 6 years

200+ partners around the world

D-REAMS Session / Paris / 12th-14th September 2017

16 - Learning From Incidents 2
The Essence

Being in control of “what you do” is about being able to answer 3 basic questions:
1. Do we understand what can go wrong?
2. Do we know what our systems are to prevent this happening?
3. Do we have information to assure us they are working effectively?

From the Press Statement post the conclusion of the Buncefield court case.
Gordon MacDonald HID, HSE UK made the statement.
Bowtie in 8 steps

An Incident is often an occurring scenario of a BowTie
Presenting the case of the UK MAA
A 6 year journey towards learning from incidents and (occurrences)
- First a proof of concept for LFI (1 BowTie, 72 incidents plotted)
- Implementing structured Learning from incidents
- (200+ Bowties, 15000 occurrences yearly)
METHODOLOGY

- Create Loss of safe separation bowtie
- Peer review
- 71 Airprox incidents spanning 4 years
- Rules and assumptions
UNDERSTANDING OF LOSS OF SAFE SEPARATION AND PLOTTING 71 AIRPROX INCIDENTS ON ITS’ BOWTIE

ANALYSIS RESULTS

Low Awareness of Conflicting Traffic

- Pilot’s Incorrect Mental Model
- ATC Incorrect Phraseology
- Lookout Compromised
So it works for learning from incidents but how does it fair for 12000 occurrences a year?

Structured analysis of occurrences in BowTieServer

- Single reporting system ASIMS
- Circa 12,000 reports per year
- Data is imported into BowTieServer
- Occurrences are analysed and linked to 200+ BowTies
Air Safety Information Management System

BowTieServer SIR
(Scenario Based Incident Registration)
Scenario based Incident Registration (SIR)

1. Select applicable categories

2. Select applicable Consequences

- Personal being hit by the dropped object
- Dropped object landing in sea
- Dropped object impacts ground
- Object impacts live equipment

Remain

Please enter any additional remarks about Consequences not listed above.
Scenario based Incident Registration (SIR)

3. Select applicable Threats

<table>
<thead>
<tr>
<th>Threat</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural failure of the crane</td>
<td>Lifting operations</td>
</tr>
<tr>
<td>Load too heavy</td>
<td>Lifting operations</td>
</tr>
<tr>
<td>Incomplete loading/lipping</td>
<td>Lifting operations</td>
</tr>
<tr>
<td>Strong winds</td>
<td>Lifting operations</td>
</tr>
<tr>
<td>Snagging of gearhead</td>
<td>Lifting operations</td>
</tr>
<tr>
<td>Operator overextending the load and tipping the crane</td>
<td>Lifting operations</td>
</tr>
</tbody>
</table>

Remarks
Please enter any additional remarks about Threats not listed above.

What to do on this page?
A list is presented with predefined Threats associated with the incident category you have already selected. Please check any item that applies. An additional Threat not mentioned in the list can be entered in the remarks text field below.

Background
In SIR diagrams, top events are caused by Threats.

Scenario based Incident Registration (SIR)

4. Performance details of safety measures

Monitor and achieve weather criteria and stop if limits are exceeded - Scenario 1 of 3

Yes the safety measure functioned correctly
No, it did not function properly
N/A (not defined or not applicable for this scenario)

Why did wind monitoring fail?
- Wind speed was monitored
- Other wind measurements were taken
- Wind speed measurements were ignored in order to finish the lift
- Lift didn’t blow away

Remarks
Please enter any additional remarks about conditions not listed above.

Banner 1 of 3
Access to this page?
Please provide information about this failure measure also review scenario 3's banner.
- Yes, the measure is clear?
- Did function?
- Do require specific failure message?

Storage
In SIR diagrams, arrows are in place to assist with understanding the logical and temporal sequence of events and to prevent a top-down or bottom-up approach.

10th GHAC - 24 Oct 2018
Scenario based Incident Registration (SIR)

Thank You!

Your incident SIR registration has been successfully processed on the server.

Filing SIR reports will help to analyze what has gone wrong and may help prevent similar incidents from happening in future.

Currently 10000 barriers are aggregating occurrence information for better understanding of how these barriers behave in real life.

Systematic analysis of occurrences though still reactive now also leads to:
- Knowing where our major issues are
- Greater insight in our operations
- Better reasoning for where we direct our resource
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MAA started with understanding the Hazard Airprox Bowtie

Monitor the status of critical barriers & plan verification activities

Implement & communicate the management system

MAA created over the span of 3 years 200+ BowTies for other major hazards

MAA started proof of concept and plotted 71 airprox incidents on the bowtie
Risk Analysis & communication of 200+ hazards

MAA treated up to 3000 occurrences this year

Implemented with SIR from ASIMS reports to BFA’s through Bowties

Hazard identification, compliance monitoring & risk assessments

Next step is proactive monitoring of the status of barriers

Implement & Apply 15000 occurrences per year to SIR
Thank you

G.van.loopik@cgerisk.com