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ES2 WS3 – 2012 Safety Surveys Improvement Tools for Safety Surveys

Luxembourg
21-22 Nov 2012

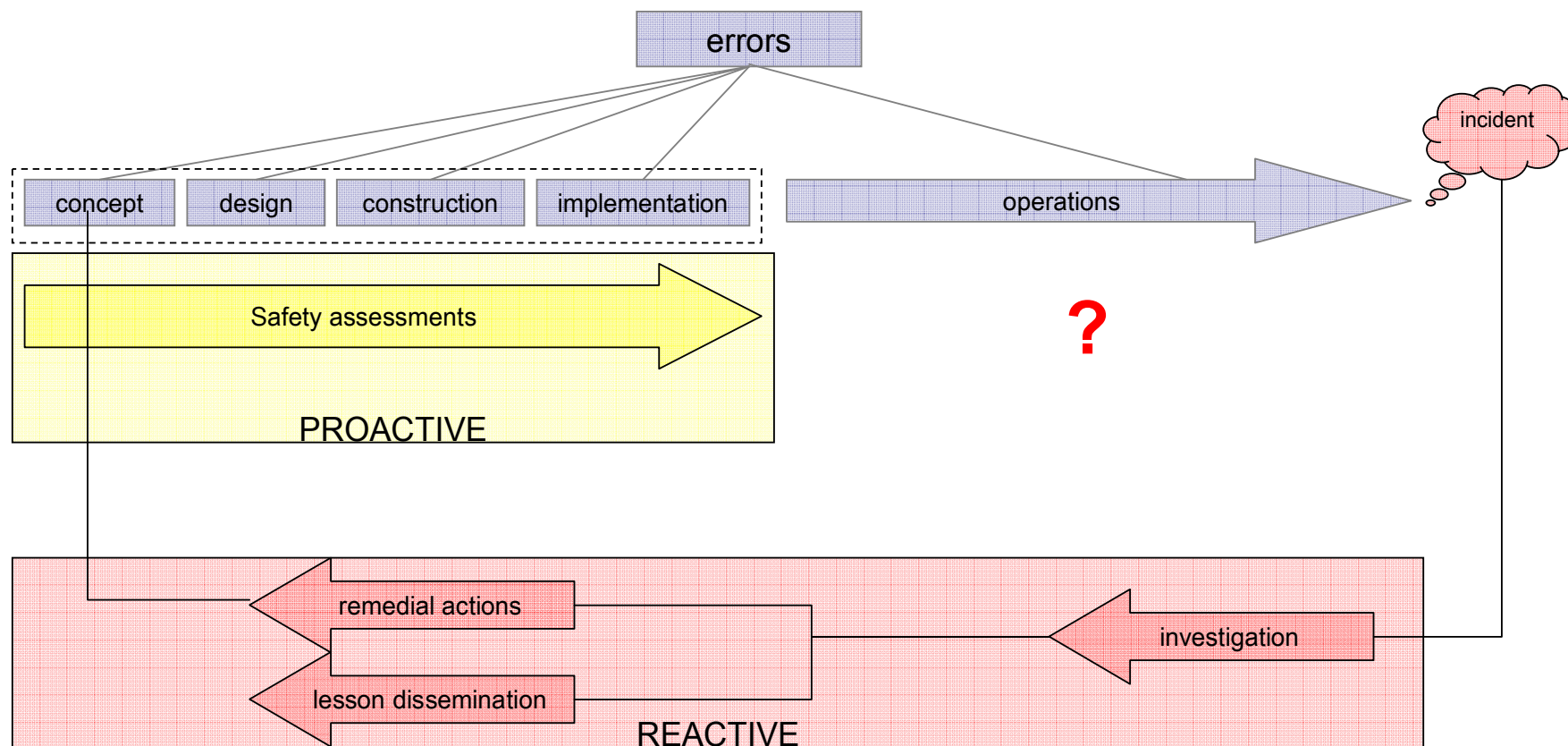
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Head of Safety Unit
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antonio.licu@eurocontrol.int



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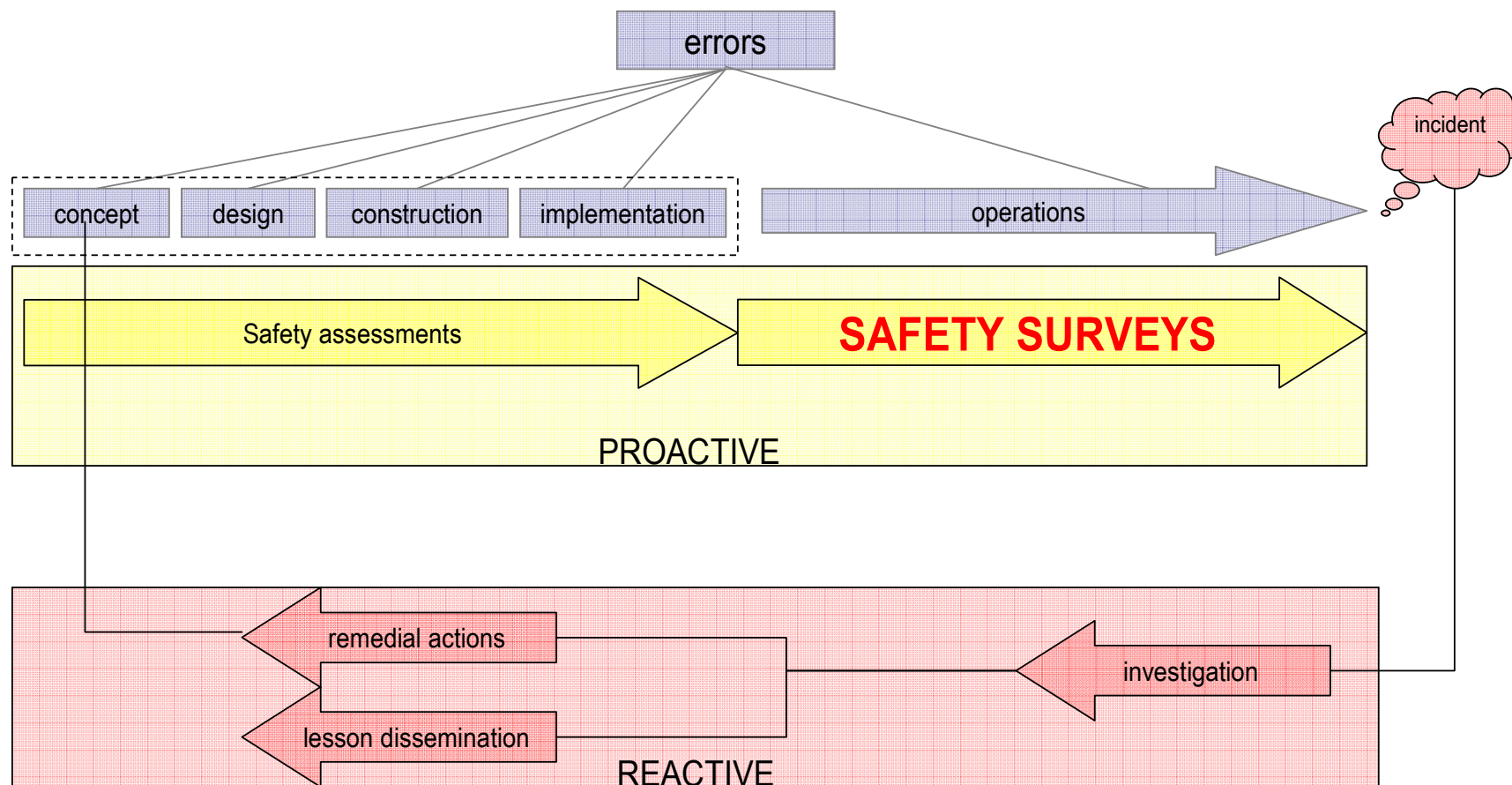


What is Safety Survey





What is Safety Survey



Audit

(external & internal)

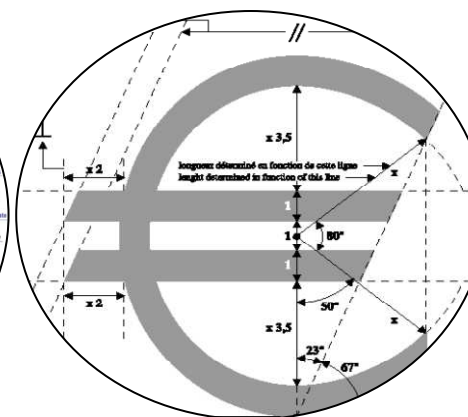
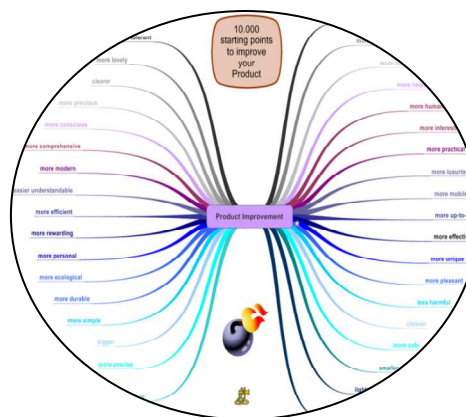
Survey

Accreditation/certification

Improvement

Efficiency

Cost effectiveness





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Surveys defined in contrast to audits (requirements)

Audit

(external & internal)

Trained/experienced
Auditors



Survey

Experts of the field trained
to safety survey techniques ✓

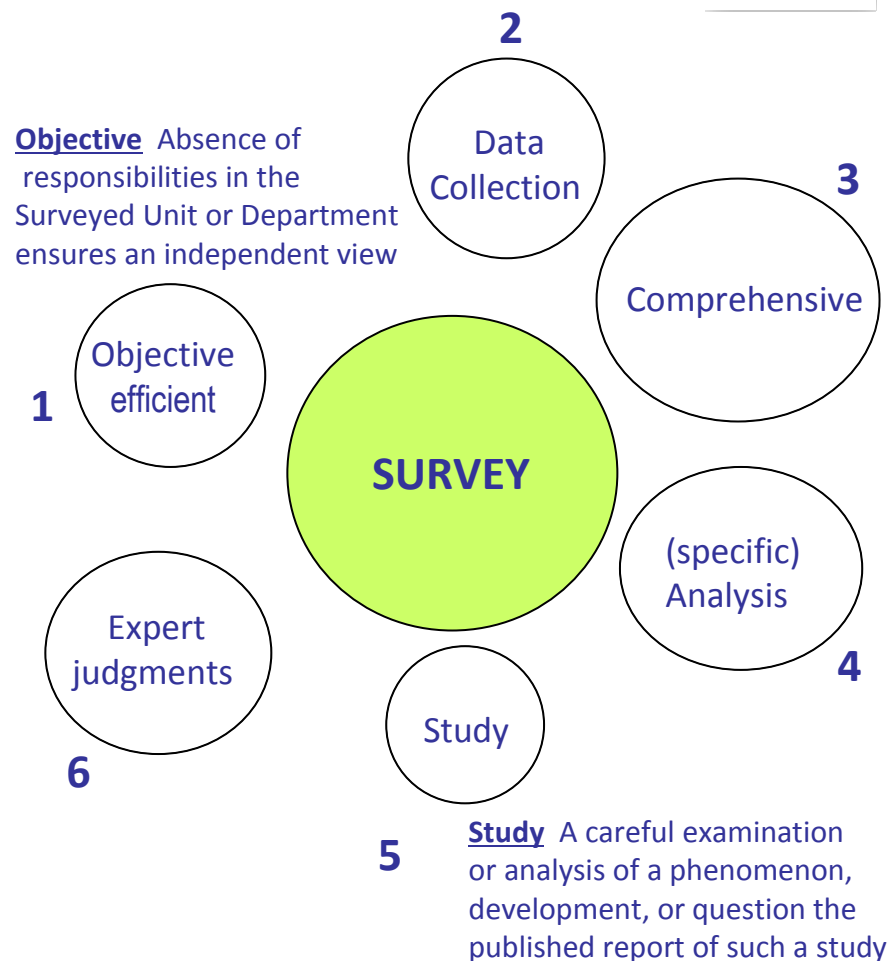




Survey / Audit



Non compliance / Non conformities

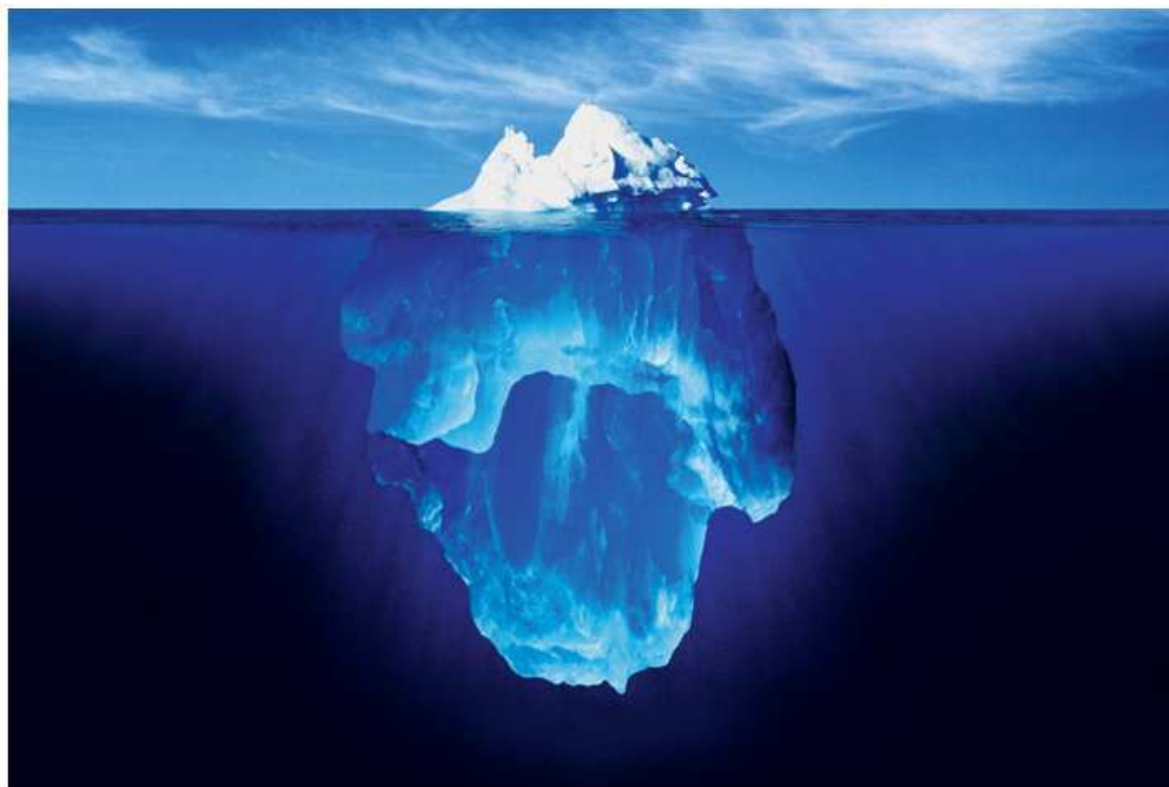


Evaluation of status



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How much do we know



External View

Internal View

**Hidden in the
system!**

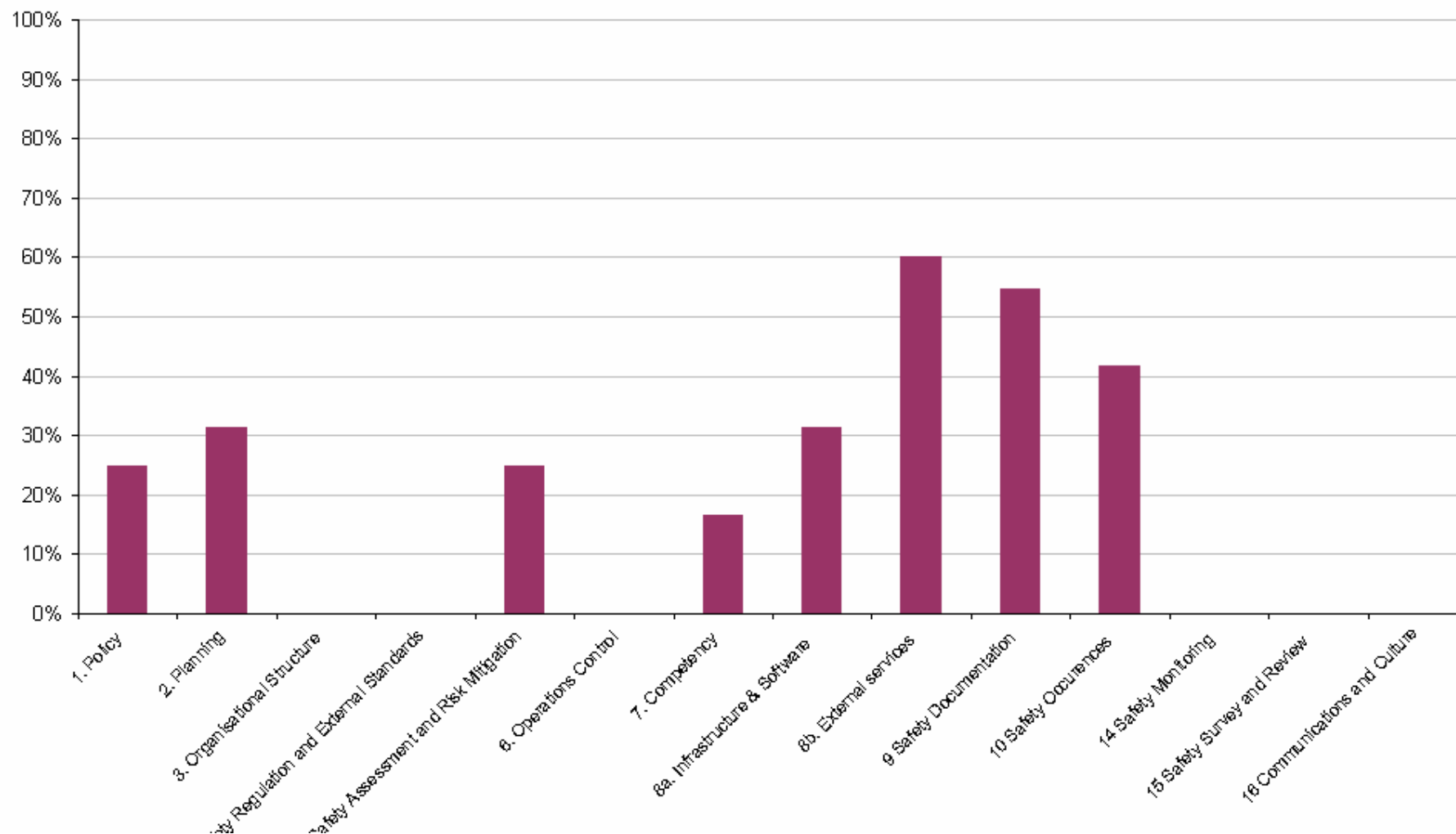
It is about Visibility

Then How deep are Findings



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Early Days of SMS requirements fulfillment SMS Survey Protocol





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Record the survey observations, results and recommendations



CESATK - Survey ExecutionSMS_CAN.1

Survey Details | Survey Answers

Survey Filter

☐ Element Management Review

☐ Tag

Survey structure

Management Review 1-Review Procedure
Management Review 2-SMS adequate and effective
Management Review 3-Corrective actions evaluation
Q1
Has a SMS been established for your organisation?
How do you maintain it?
Q4
Q5
Q6
Q7
Q1 Safety Policy-Employer Expectations
Q2 Safety Policy-Expectation communication
Q3 Safety Policy-Safety obligations role
Q4 Safety Policy-safety philosophy
Q5 Safety Policy
Q6 Safety Policy

Description

What is the process in place for evaluating corrective actions?

Question content as described in Standard

Tag To the accountable executive or safety officer

Answer

☐ 0
☐ 1
☐ 2
☒ 3

Survey Results Area

Comment

Observations Area

Save answer Clear Answer

Record

Observations and
Results
Recommendations

Results and Observations recorded at the survey time or later at the review time for each question

Survey results automatically mapped between sessions



Record the survey observations, results and recommendations

Observations and
Results

Recommendations

Survey	Element	Question	Scoring	Answer
SMS_CAN.1	Safety Policy	Q1 Safety Policy	3	<input checked="" type="checkbox"/>
SMS_CAN.1	Safety Policy	Q2 Safety Policy	2	<input checked="" type="checkbox"/>
SMS_CAN.1	Safety Policy	Q3 Safety Policy		<input type="checkbox"/>
SMS_CAN.1	SAFETY MANAG...	Has a SMS been establis...	2	<input type="checkbox"/>
SMS_CAN.1	SAFETY MANAG...	How do you maintain it?	3	<input type="checkbox"/>
SMS_CAN.1	SAFETY MANAG...	Q1	3	<input type="checkbox"/>
SMS_CAN.1	SAFETY MANAG...	Q4	3	<input type="checkbox"/>
SMS_CAN.1	SAFETY MANAG...	Has a SMS been establis	2	<input type="checkbox"/>

Recommendations recorded later at the evaluation for each Element in a distinct module

Survey questions, results and observations also included to provide consistency with scoring (Award score assignment) and follow-up actions



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Surveyors trained to use the same approach in a consistent manner



The screenshot displays the CESATK-Demo Version software interface. On the left, a tree map organizes components under 'SMS_STANDARDS' and 'SMS_CAN'. The tree includes folders for 'SAFETY MANAGEMENT SYSTEM', 'SAFETY MANAGEMENT PLAN', 'Performance Measurement', 'Management Review', 'Safety Policy', 'Non-Punitive Safety Reporting Policy', 'Roles, Responsibility & Employee Involvement', 'Communication', 'DOCUMENTATION', 'SAFETY OVERSIGHT', 'TRAINING', 'QUALITY ASSURANCE', 'EMERGENCY PREPAREDNESS', and '(Scoring):SMS_CAN'. The '(Scoring):SMS_CAN' folder is expanded, showing 'Level 1' through 'Level 5'. On the right, the 'Level 5' standard is selected, showing its details: Name 'Level 5', Description 'A score of (5) is considered to meet all of the criteria for an award level of (4) plus all of the additional requirements listed under the criteria for that element. To achieve an award level of (5), an organisation would have to meet the regulatory requirements as well as demonstrate industry best practices at a very high level. The policy is clearly visible o all personnel and particularly throughout the safety-critical areas of the organisation. The policy is included in key documentation and communication media. Senior managers clearly articulate the importance of safety when addressing company personnel.', Comment (empty), Score Weight '5', and Criteria Compliance '5'. A 'Validate' button is at the bottom. The status bar at the bottom left shows 'FPS 117,0; Avg. FPS 140,2'.

Standard Definition: Tree map organisation of Components, Elements, Questions, Criteria, Scoring in a graphical manner



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The screenshot shows the 'CreateSurvey' application window. On the left, there is a table titled 'Select a Base Standard' with a dropdown menu set to 'SMS_CAN'. The table has columns: Survey_NAME, SEQ, CREATION, MODIFICATION, and COMM. The first two rows are 'SMS_CAN.1' and 'SMS_CAN.2'. Below the table is a greyed-out area with an asterisk. On the right, there is a 'Survey Description' form with fields for Survey NAME, SEQ, CREATION, MODIFICATION, and COMMENTS. The Survey NAME is 'SMS_CAN.1', SEQ is '1', CREATION is '25 ianuarie 2009', MODIFICATION is '14 septembrie 2009', and COMMENTS is 'The Transport Canada Approach base standard'. There are 'OK' and 'Cancel' buttons at the top right of the form.

	Survey_NAME	SEQ	CREATION	MODIFICATION	COMM
▶	SMS_CAN.1	1	25.01.2009 22:26	14.09.2009 22:26	The Tra
	SMS_CAN.2	2	22.03.2009 19:55	22.03.2009 19:55	
*					

Survey Description

Survey NAME: SMS_CAN.1

SEQ: 1

CREATION: 25 ianuarie 2009

MODIFICATION: 14 septembrie 2009

COMMENTS: The Transport Canada Approach base standard

Selection of a base standard to create a **Survey Definition**.

All attributes of the standard are inherited to enable a consistent approach to survey execution



Surveyors trained to use the same approach in a consistent manner

Standard definition

Survey Definition

Survey Execution Selection

SurveySelectionForm

Survey: SMS_STANDARDS.N.new
SMS_STANDARDS.N.new
SMS_CAN..OPS Room

Standard: SMS_STANDARDS

Tag:

Local Report

Survey Reports

Execute

Select Prepared not executed surveys

SurveySelectionForm

Survey: SMS_CAN.1

☒ Show Executed surveys

Standard: SMS_CAN

Tag:

Local Report

Survey Reports

Execute

Review executed
surveys



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CESATK - Survey ExecutionSMS_CAN.1

Survey Details | Survey Answers

General

Standard SMS_CAN

Parent Survey

Tag

Surveyed Organization

Name Organisation Identification

Country European Union

Description ANSP Safety Survey

Tag OPS Room and ATC Procedures

Surveyer Data

Name Surveyor A.

Contact Eurocontrol

Tag Surveyor Identification

Record

Standard definition

Survey Definition

Survey Execution Selection

Additional data sections to be
added for survey identification:

- General Data
- Target Organisation
- Surveyor identification

Multiple attributes for each
section, database self recording



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CESATK - Survey ExecutionSMS_CAN.1

Survey Details | Survey Answers

Survey Filter

☒ Element MAnagement Review

☐ Tag

Survey structure

- MAnagement Review 1-Review Procedure
- MAnagement Review 2-SMS adequate and effective
- MAnagement Review 3-Corrective actions evaluation
- Q1
- Has a SMS been established for your organisation?
- How do you maintain It?
- Q4
- Q5
- Q6
- Q7
- Q1 Safety Policy-Employer Expectations
- Q2 Safety Policy-Expectation communication
- Q3 Safety Policy-Safety obligations role
- Q4 Safety Policy-safety philosophy
- Q5 Safety Policy
- Q6 Safety Policy

Description

What is the process in place for evaluating corrective actions?

Tag To the accountable executive or safety officer

Answer

☐ 0

☐ 1

☐ 2

☒ 3

Comment

Save answer Clear Answer

Record

Survey Execution: Survey questions and all necessary
information in a single form



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Reports

Select a SURVEY

ESP.1
ESP.2
NEW_ESP
NEW_ESP.1
NEW_ESP.2
SMS_CAN.1
SMS_CAN.2

Open Report

Run Report

Survey	Component	Element	Survey Area/Compliance	Criteria	Question	Survey Answer	Weighting Factor	Criteria Weight	Standard Criteria Weight
ESP.1									
BASE STANDARD ESP									
User Groups									
	ANSP	SA1	SA1		ANSP Question1	3	4		1
					ANSP Question2	3	2		1
					ANSP Question3	5	1		1
					ANSP Question4	5	2		1
					ANSP Question5	5	3		1
			0.80	0.80				1	1
			80.00	0.80	0.80	0.80	0.80	1	1
		SA10	SA10		ANSP Question1	3	3		1
					ANSP Question2	3			1
					ANSP Question3	5			1
					ANSP Question4	5			1
					ANSP Question5	5			1
			0.80	0.80				1	1
			80.00	0.80	0.80	0.80	0.80	1	1
		SA11	SA11		ANSP Question1	3	2		1
					ANSP Question2	3			1
					ANSP Question3	5			1
					ANSP Question4	5			1
					ANSP Question5	5			1
			0.80	0.80				1	1
			80.00	0.80	0.80	0.80	0.80	1	1

1 of 8

Reports: Dynamic tabular off-line reports stored outside database,
standard reporting language



Surveyors trained to use the same approach in a consistent manner

Form1

6 of 7

Find | Next

ReportSurvey

- ESP.1
- ESP.2
- NEW_ESP
- NEW_ESP.1
- NEW_ESP.2
- SMS_CAN.1
- SMS_CAN.2

Survey Name SMS_CAN.1

							SMS_CAN		
								Survey	Criteria Mapping
SAFETY MANAGEMENT PLAN	Management Review (5)	4.72	Level 3 (3:3)	2.3	A	Management Review 1	0.6666666666666667	2	3
						Management Review 1	0.6666666666666667	2	3
						Management Review 2	1	3	3
		Level 5 (5:)	5		1	3	5		
			2.25			0.944099378881988	10	14	
	Safety Policy (5)	4.31	Level 3 (3:3)	3		1	6	6	
Level 5 (5:)					4.2		0.8333333333333333	5	10
					4.39		0.862938596491228	11	16
		6			0.891039426523297	21	30		
SAFETY MANAGEMENT	SAFETY MANAGEMENT	4.08	Level 3 (3:3)	2.6		0.8666666666666667	13	15	

Reports: Web-style predefined dynamic reports stored outside database, standard reporting language, single survey detail



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DataExporter

DataGridView

Satndard	Components	Criteria	Elements	Questions	SEC	Crit	Crit	Eler
SMS_C...	SAFETY MANA...	B	Management Review	Management Review	66	3	1	
SMS_CAN	SAFETY MANAGEMENT PLAN	B	Management Review	Management Review 2	67	3	1	
SMS_C...	SAFETY MANA...	B	Safety Policy	Q1 Safety Policy	7	3	3	
SMS_CAN	SAFETY MANAGEMENT SYSTEM	B	SAFETY MANAGEMENT SYSTEM	Has a SMS been established for your organisation?	5	3	3	
SMS_C...	SAFETY MANA...	Bes...	Safety Policy	Q2 Safety Policy	70	5	5	
SMS_CAN	SAFETY MANAGEMENT PLAN	Best Practice	Safety Policy	Q3 Safety Policy	76	5	5	
SMS_C...	SAFETY MANA...	Bes...	SAFETY MANAGEMENT SYSTEM	Q5	73	5	5	
SMS_CAN	SAFETY MANAGEMENT	Best	SAFETY MANAGEMENT	Q6	74	5	5	

Exports

Excel

Pdf

Html

Find

Find

Find with Dialog

Print

Print Preview

Print

Show print dialog ☒

Other

Open Settings

Refresh Grid

UI Permissions

Xml Persistence Location

This is the folder where all of your changes made to the DataGridView control will be persisted in Xml format.

C:\Users\Eduard\Documents\Visual Studio 2008\Projects\CESATK_R\CESATK_

Change...

Open

Exporters Location

All of your export assemblies are located in the folder shown below.

C:\Users\Eduard\Documents\Visual Studio 2008\Projects\CESATK_R\CESATK_M\CESATK\SVNRepository\CESATK\

Open

Support functions Preview, Export/Import, Print, with
full user customised options



Define your own survey "standard" based on what you are going to survey : SMS, OPS Room, Equipment , etc

Flexible Standard structure to enable different Survey types and complexity in definition

Component	Node containing other components or children element nodes
Element	Node containing question nodes and a single element scoring node
Question	Node that contains Criteria nodes
Global Scoring	Node that is unique for each standard and contains global criteria
Global criterion	Child node of global scoring and element scoring nodes which are used to compute the score and contain element criteria nodes
Element Scoring	Unique child node of an element node that contains element criteria nodes
Element criterion	Node that appears under the Global Criteria nodes



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Define your own survey "standard" based on different survey structure,



CESATK-Demo Version

Standard(s) Editor Control Demo

LoadData
SaveData
Export
Create/Select Standard
Update Database
Create Copy
Expand All

SMS_STANDARDS
SMS_CAN
SAFETY MANAGEMENT SYSTEM
SAFETY MANAGEMENT PLAN
Performance Measurement
Management Review
Safety Policy
Non-Punitive Safety Reporting Policy
Roles, Responsibility & Employee Involvement
Communication
DOCUMENTATION
SAFETY OVERSIGHT
TRAINING
QUALITY ASSURANCE
EMERGENCY PREPAREDNESS
(Scoring):SMS_CAN
Level 1
Level 2
Level 3
Level 4
Level 5

Name: Level 5

Description: A score of (5) is considered to meet all of the criteria for an award level of (4) plus all of the additional requirements listed under the criteria for that element. To achieve an award level of (5), an organisation would have to meet the regulatory requirements as well as demonstrate industry best practices at a very high level. The policy is clearly visible to all personnel and particularly throughout the safety-critical areas of the organisation. The policy is included in key documentation and communication media. Senior managers clearly articulate the importance of safety when addressing company personnel.

Comment:

Score Weight: 5 Criteria Compliance: 5

Validate

FPS 117,0; Avg. FPS 140,2

Standard Definition: Graphical mapping of database objects
identifying survey structure



Present the results so as to identify trends, good practices and less good practices

Multi-survey Reports

Form1

3 of 3

Find | Next

ReportSurveystandard

- ESP
- SAF2010
- SMS_CAN

he SMS_CAN

										Survey
SMS_CAN.1	SAFETY MANAGEMENT PLAN	Management Review (5)	4.72				0.944099378881988	10		
		Safety Policy (5)	4.31	Level 3 (3)	3		1	6		
				Level 5 (5)	4.2	Best Practices	Q2 Safety Policy	0.666666666666667	2	
					Q3 Safety Policy		1	3		
	8.5					0.891039426523297	21			
	SAFETY MANAGEMENT SYSTEM	SAFETY MANAGEMENT SYSTEM (5)	4.08	Level 3 (3)	2.6		0.866666666666667	13		
				Level 5 (5)	4		0.8	8		
4					0.81631419939577	21				
12.5					0.850491803278689	42				
SMS_CAN.2	8.0					0.419047619047619	33			

of 3

Reports: Web-style predefined dynamic reports side-by-side surveys based on standard selection for comparison automatic scoring computation



User requirements to Functional requirements mapping

Essential Requirements

- Flexibility
- User friendliness
- Versatility
- Adaptability
- Performance
- Cost effectiveness
- Portability

Functional Requirements

- Modularity
- Centered around a relational database
- Efficient HMI
- Open interfaces: e.g. XML
- Interface for easy exchange of data

CESATK Architecture

- Human Machine Interfaces: allows a human operator to interact with the business applications layer.
- Data processing layer: provides the core functionality, providing HMIs with services and data.
- Database layer: provides access through queries to the relational database.
- Hardware & Operative System: represents the physical world (not shown on the diagram).



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What other tools we have

- Dashboard
- What If
- DSNA – FABEC TOOL
- DEMOs



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Thank you





End of tools presentation survey

1. Questions?

YES ☐ NO ☐

2. If YES above, were questions interesting?

YES ☐ NO ☒

3. If YES in 1 and NO in 2 above were the ANSWERS interesting?

YES ☒ NO ☐

4. If NO in 1 above does this mean the presentation was NOT interesting?

YES ☐ NO ☒

5. If NO in 1 above does this mean the presentation was very clear and complete?

YES ☒ NO ☐