TOKAI Introduction

Occurrence Investigation Process and TOOLS

ESARR 2

Need to know about undesired events that have had or might have had an impact on safety

Reporting systems

Requires a common

TAXONOMY

Reported Safety Occurrences

Need to determine to what extent ATM has contributed to the occurrences and severity of a safety risk

Data collection
Analysis
Severity assessment
ATM contribution

Requires

HARMONISED PROCESSES

Findings, Recommendations
Severity Assessment

Need to share experiences

Agreements (bilateral or regional)

Annual Summary Template

Requires

PROCEDURES

CONFIDENTIAL ASSURANCE

Trends, KRA, ATM improvements
GLOBAL SOLUTIONS

Background

Need for harmonised analysis of ATM Safety Occurrences

1. Prerequisite for Safety Improvement - Lessons learned;
2. Safety Management - Harmonised approach;
3. Safety Regulation - Coherent data;

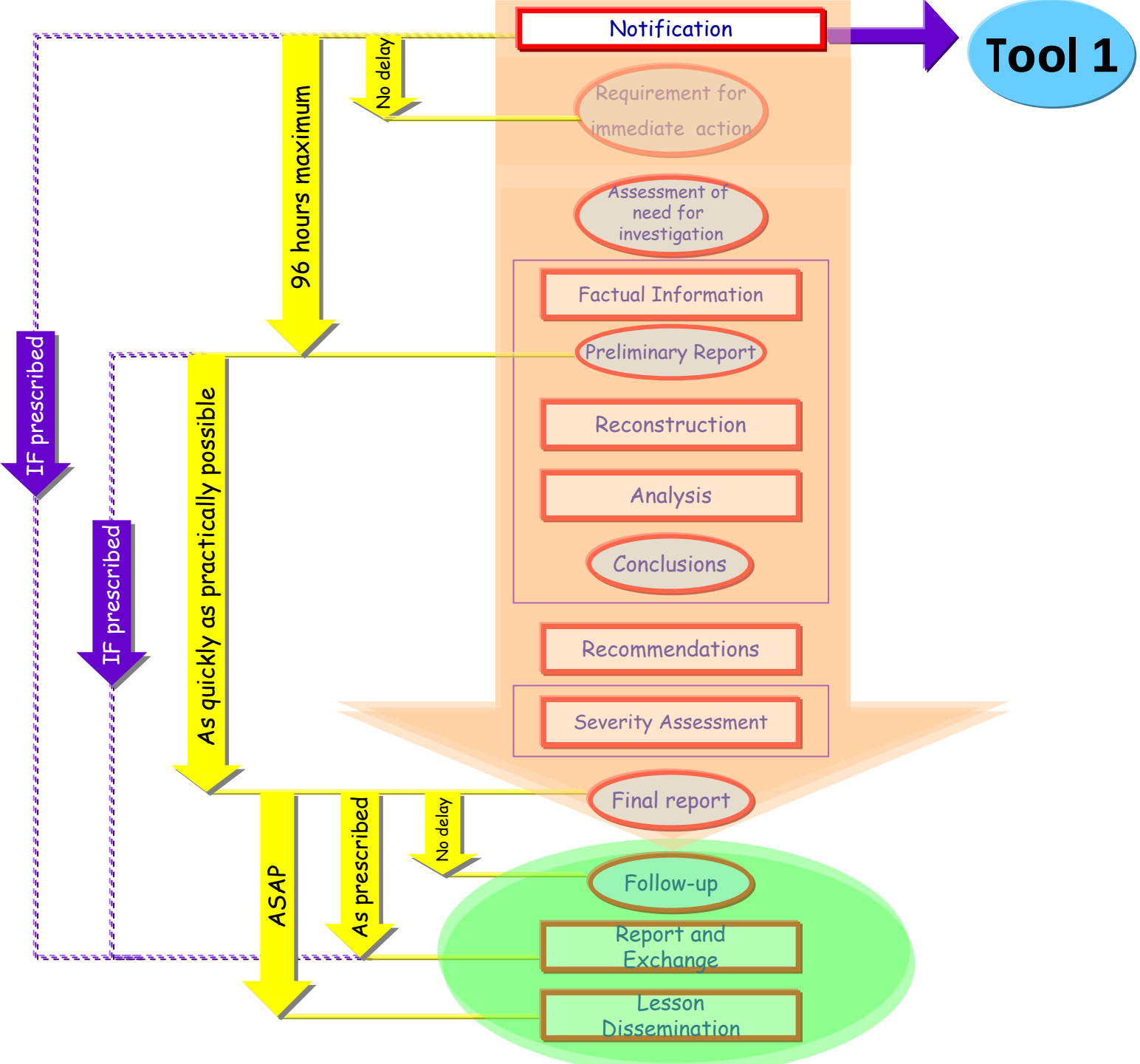
Harmonised Analysis Implies

1. Common Method or Technique - SOFIA;
2. Shared Vocabulary - HEIDI;
3. Common process structure - guidelines document;
4. Support Tool - TOKAI;
5. Data Exchange Tool - SHIELD;

ESARR2 compliance package

1. Guidelines for Safety Occurrences Investigation in ATM ;
2. Guidelines - Reporting Systems for ATM;
3. SOFIA Tutorial Workbook;
4. HEIDI Taxonomy;
5. Support Tool - TOKAI;

Tools Description


Notification
Tool 1
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
Preliminary Report
IF prescribed
Reconstruction
Analysis
IF prescribed
Conclusions
As quickly as practically possible
Recommendations
Severity Assessment
Final report
No delay
ASAP
As prescribed
Follow-up
Report and Exchange
Lesson Dissemination

Tool 1

APDSG form

TOKAI - ATS OCCURENCE REPORTING FORM

ATS Occurence Reporting Form

OK | Help | Cancel | Print

National Reference Number: REP0002

Main Data, Box 1-12 | Other Data, Box 14-19 | Description of Occurence, Box 13

1. Date and Time of Occurence (UTC):
DATE (as YY/MM/DD) 12 02 1999
TIME (as HH:MM) 15:40

2. Day/Night
(•) Day
( ) Night

3. Geographical location of occurence:
Latitude/other
Longitude/other

4. Aircraft Involved
(•) Yes
( ) No
Number of Aircraft Involved: 2
A/c no 1
A/c no 2

5. RTF frequency and surveillance equipment used:
119.7
SSR

6. Class of Airspace
( ) A ( ) E
( ) B ( ) F
( ) C
( ) D (•) G

7. Type of Air Traffic Service:
APP

8. Estimated Horizontal / Vertical Distance
Vertical Distance: (•) feet ( ) m — 0
Horizontal Distance: (•) NM ( ) km ( ) min — 0

9. Automated Warning System
Ground-based
( ) STCA
( ) MSAW
( ) APW
( ) SMF
( ) Other
Airborne
( ) GP
( ) ACA
( ) Oth

10. Traffic Information Given
( ) Yes
(•) No

11. Recordings reviewed?
(•) Yes
( ) No

12. Weather
( ) Yes
( ) No

A/c Details

OK | Cancel | Help

Operator: AFR
Call sign and/or registration: F-GJVG
Type: A320
ADEP: LFPO Suport...
ADES: LFML Suport...

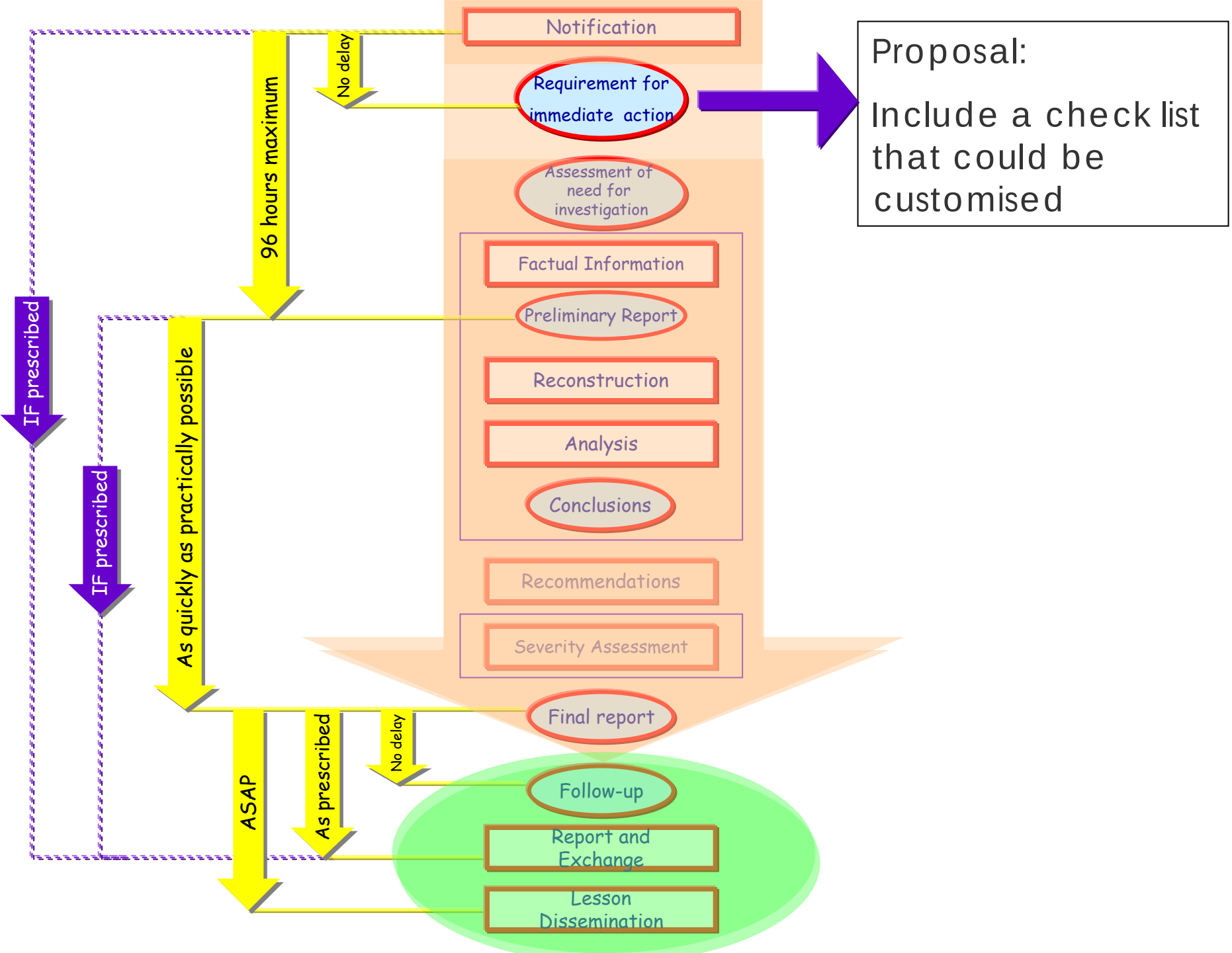
FL / Altitude / Height

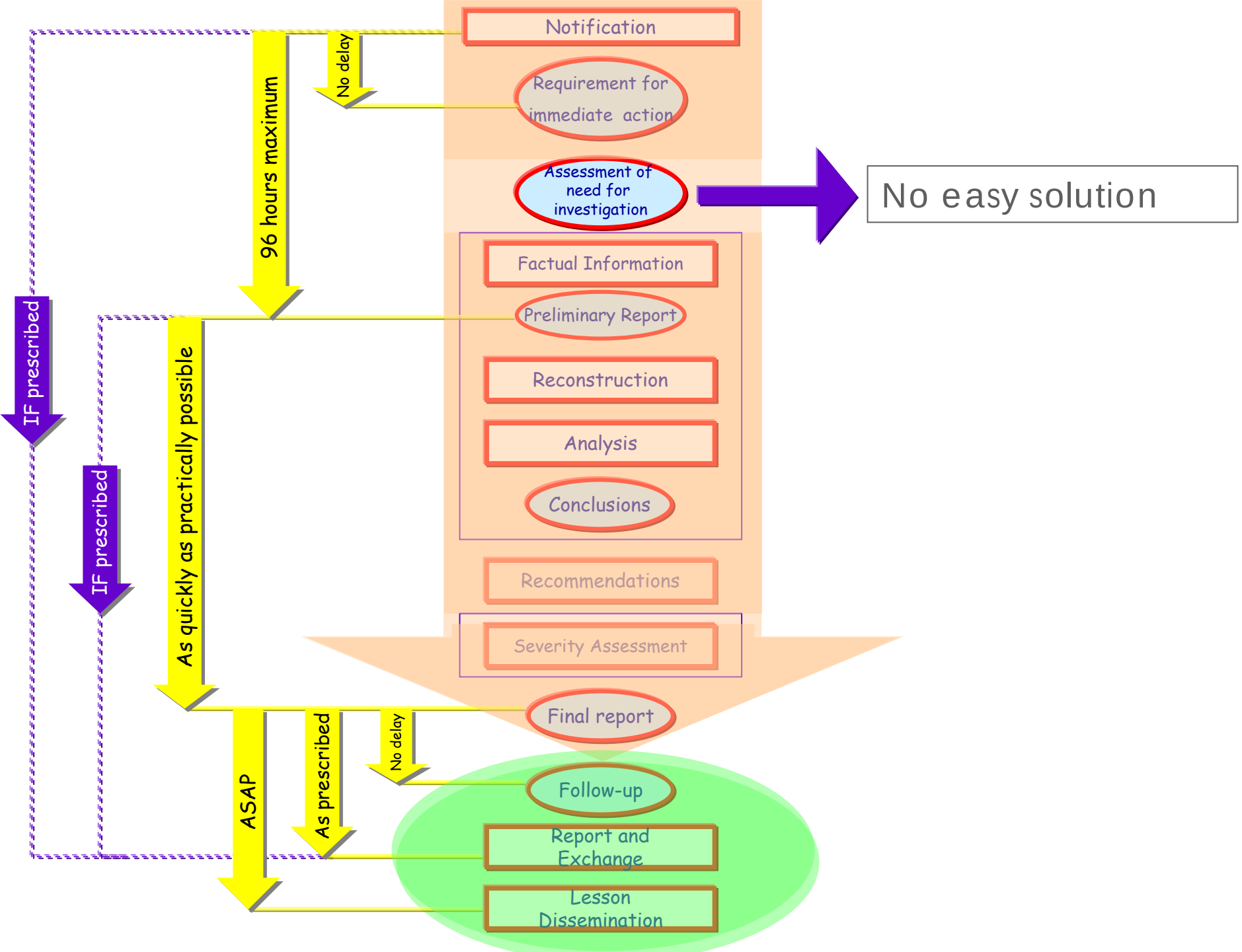
	FL	Altitude	Height
Actual		8300	
Cleared		7000	
	(•) feet ( ) m	(•) feet ( ) m	(•) feet ( ) m

SSR Code:
Mode C: (•) Yes ( ) No

Relevant route segment: MEN-VALAG

Flight Rules
(•) IFR ( ) SVFR ( ) IFR / VFR ( ) Unknown
( ) VFR ( ) CVFR ( ) VFR / IFR ( ) Other


Notification
No delay
96 hours maximum
Requirement for immediate action
Proposal:
Include a check list that could be customised
Assessment of need for investigation
Factual Information
Preliminary Report
Reconstruction
Analysis
Conclusions
Recommendations
Severity Assessment
IF prescribed
IF prescribed
As quickly as practically possible
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination


Notification
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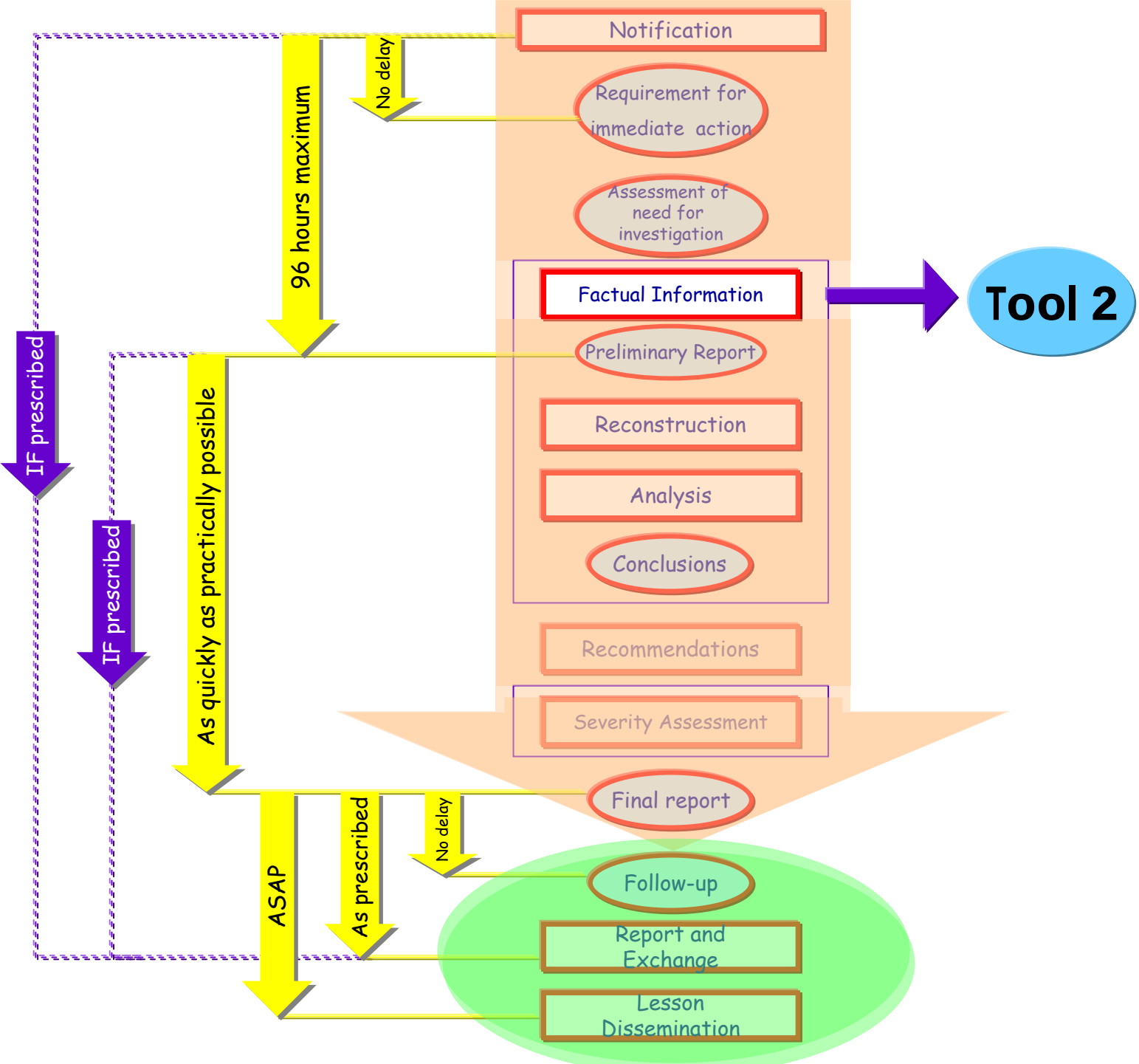
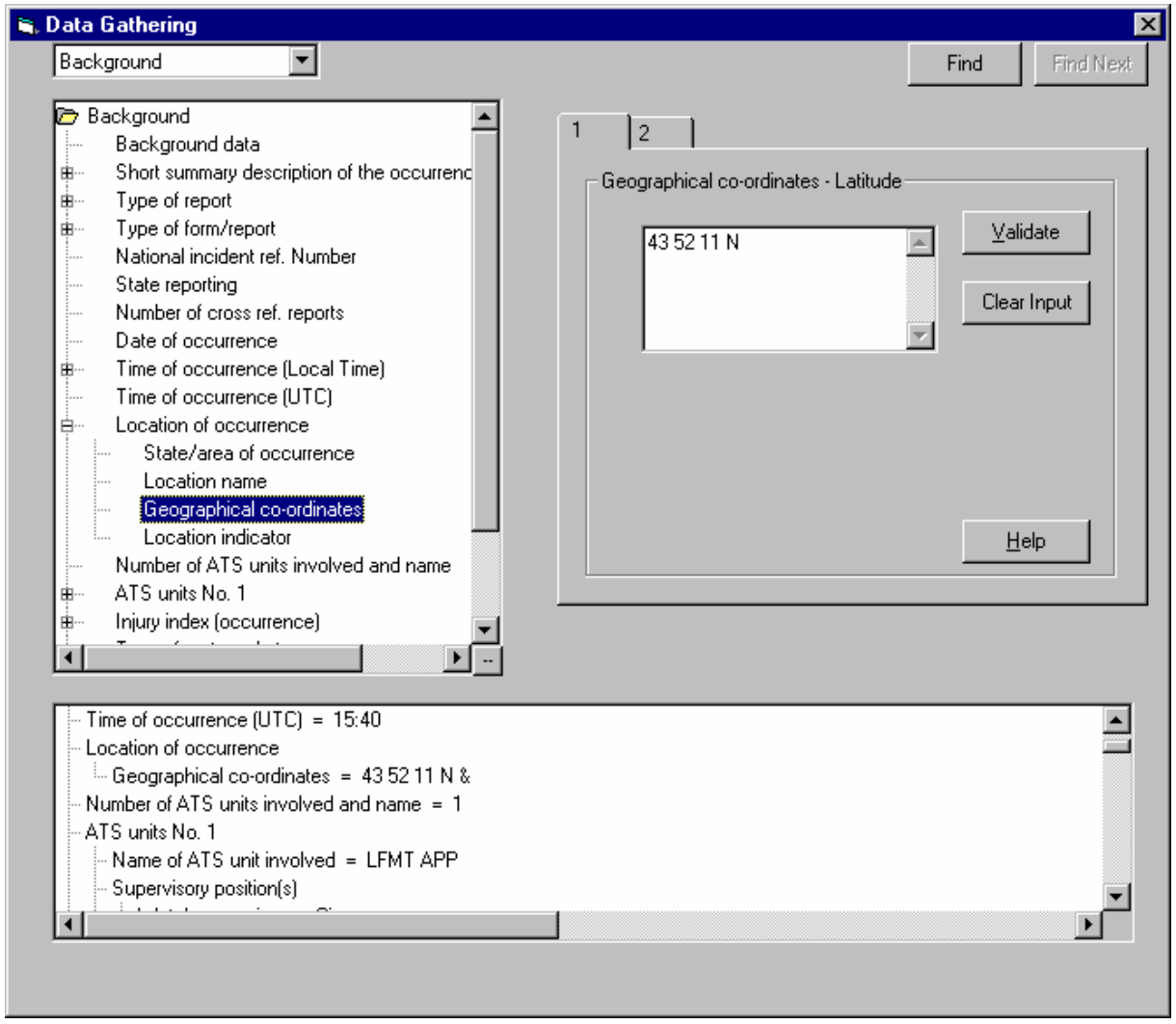
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
No easy solution
Factual Information
Preliminary Report
Reconstruction
Analysis
Conclusions
Recommendations
Severity Assessment
IF prescribed
IF prescribed
As quickly as practically possible
Final report
No delay
As prescribed
ASAP
Follow-up
Report and Exchange
Lesson Dissemination


Notification
No delay
96 hours maximum
Requirement for immediate action
Assessment of need for investigation
Factual Information
Tool 2
IF prescribed
Preliminary Report
Reconstruction
Analysis
IF prescribed
As quickly as practically possible
Conclusions
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination

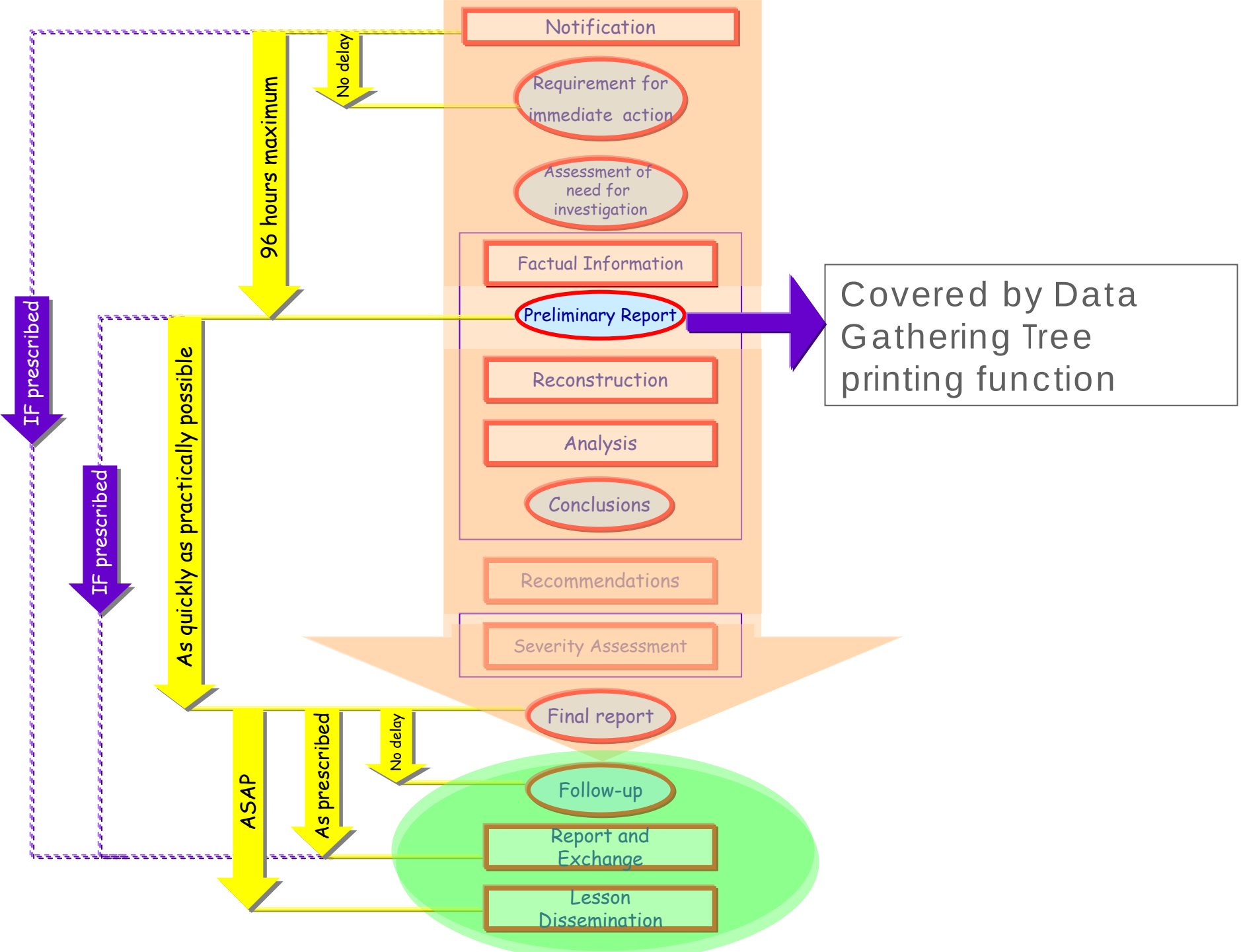
Tool 2

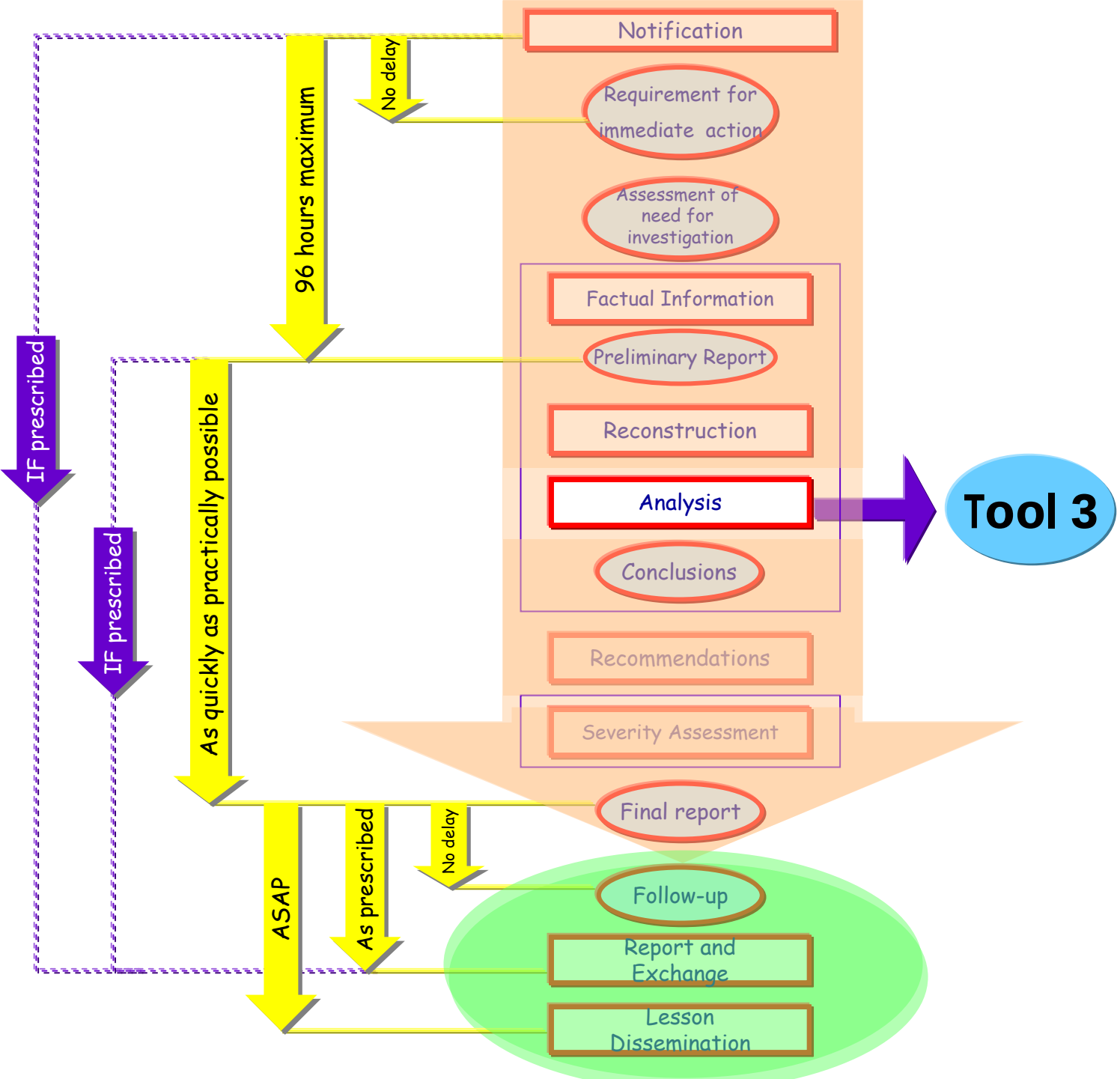
Factual Information Gathering Tree



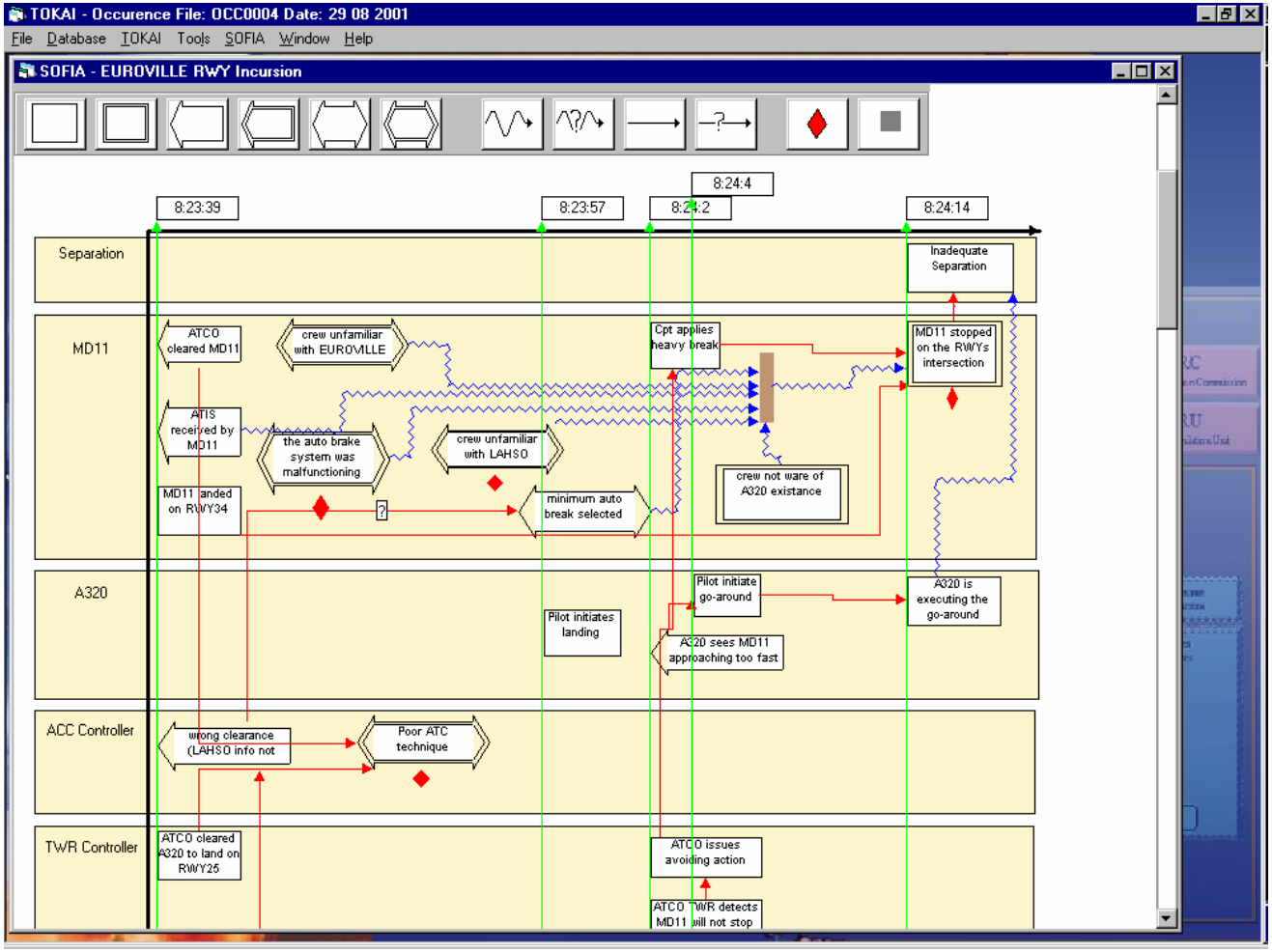
HEIDI Based, aligned with ICAO ADREP2000, includes

- Help
- Find function
- Report printing


Notification
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
IF prescribed
Preliminary Report
Covered by Data Gathering Tree printing function
Reconstruction
Analysis
IF prescribed
As quickly as practically possible
Conclusions
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination


Notification
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
Preliminary Report
IF prescribed
Reconstruction
Analysis
Tool 3
IF prescribed
As quickly as practically possible
Conclusions
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination

Tool 3



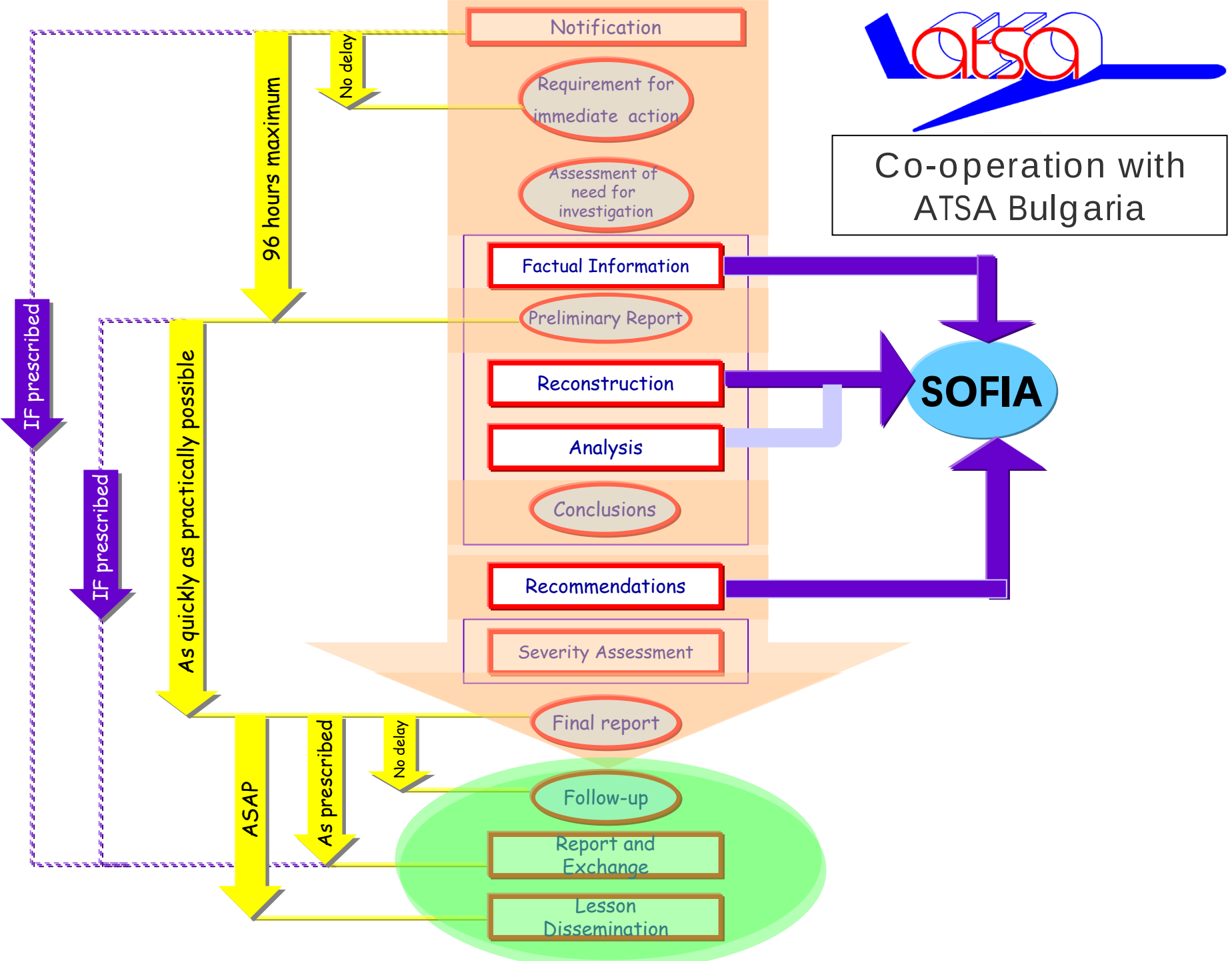
Sequentially

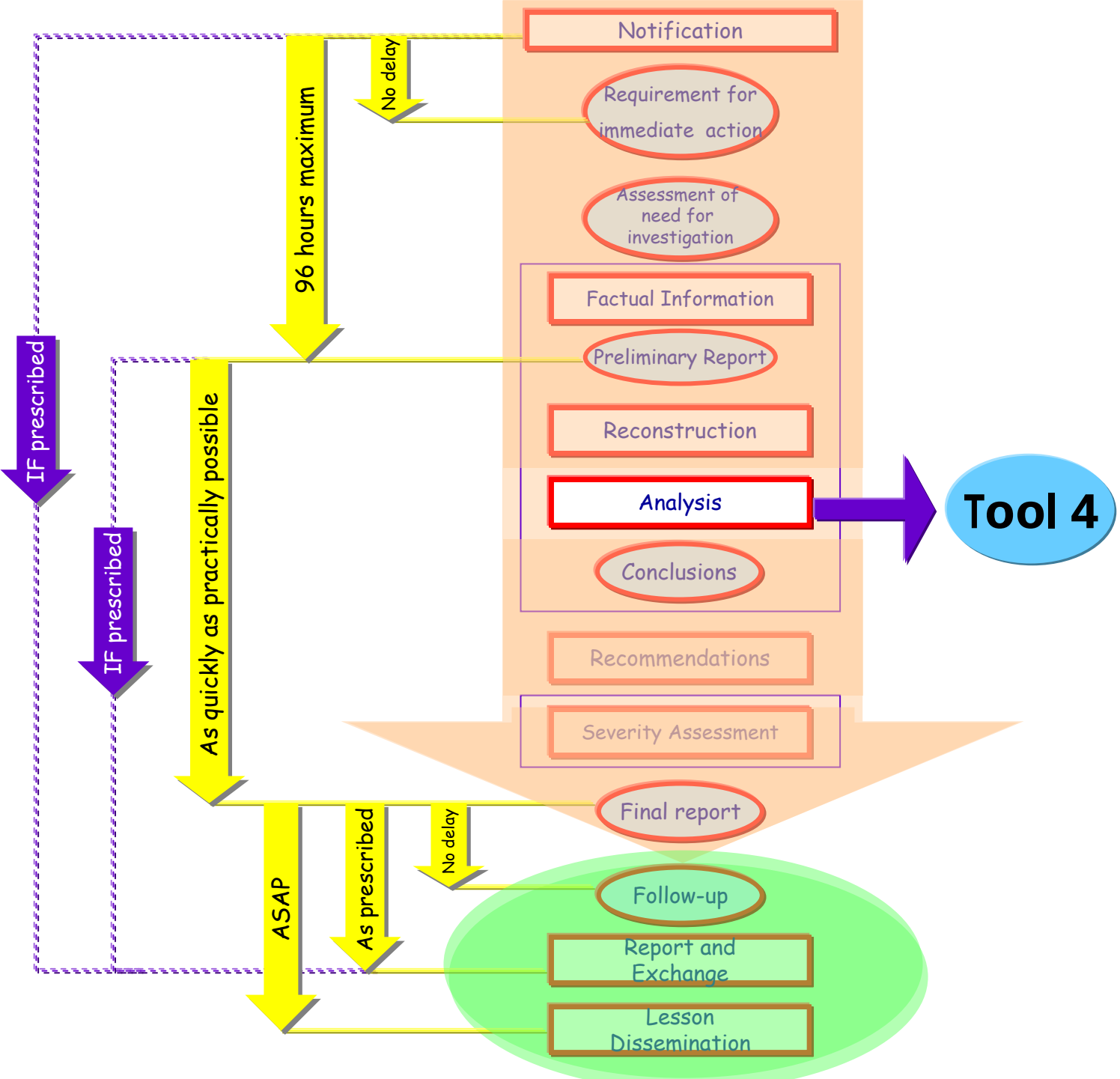
Outlining and

Follow-up

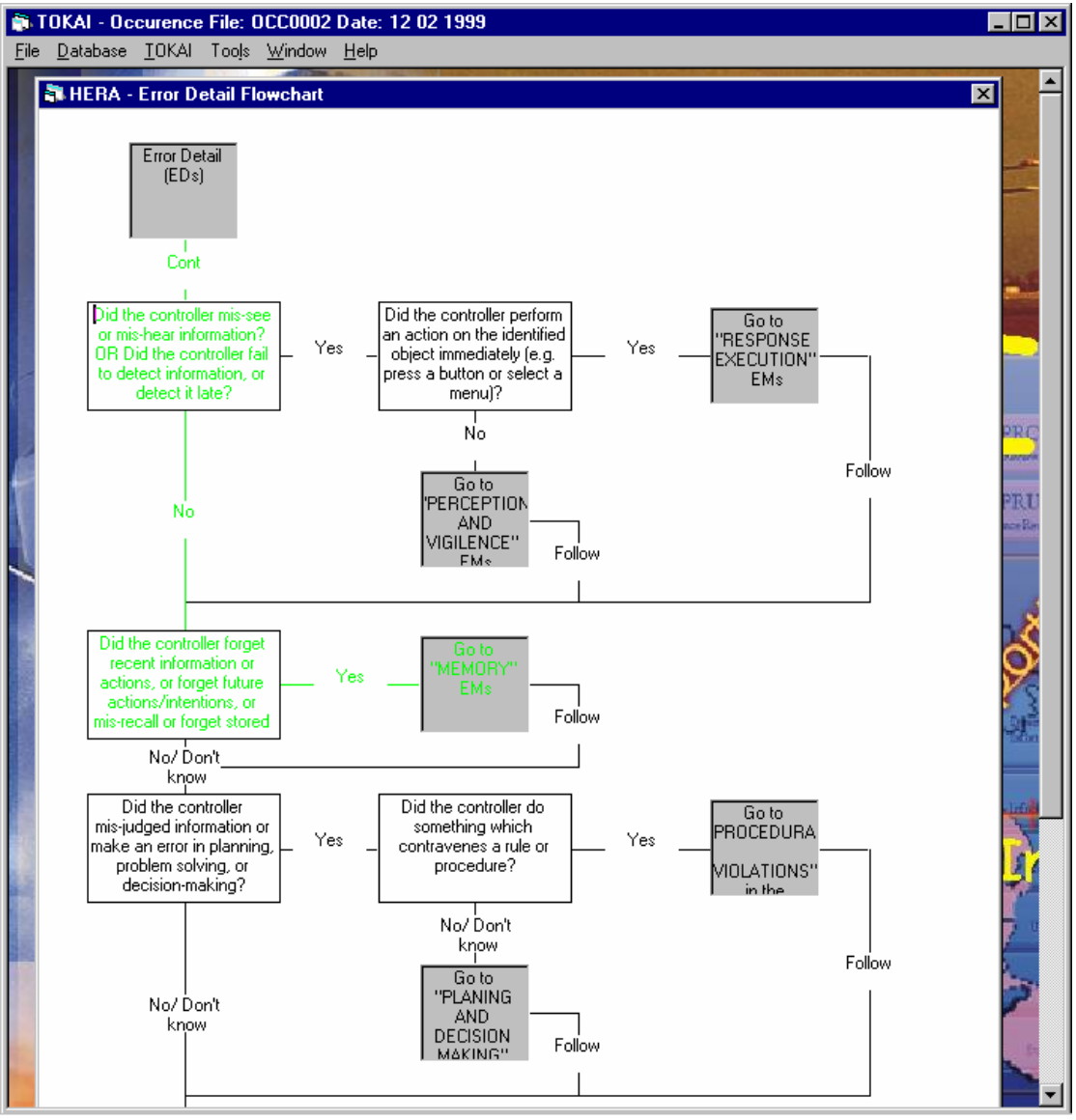
Integrated

Analysis


Notification
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
Preliminary Report
Reconstruction
Analysis
Conclusions
Recommendations
Severity Assessment
Final report
IF prescribed
IF prescribed
As quickly as practically possible
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination
SOFIA
Co-operation with ATSA Bulgaria


Notification
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
Preliminary Report
IF prescribed
Reconstruction
Analysis
Tool 4
IF prescribed
As quickly as practically possible
Conclusions
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination

Tool 4



European Air Traffic Management Programme

EATMP

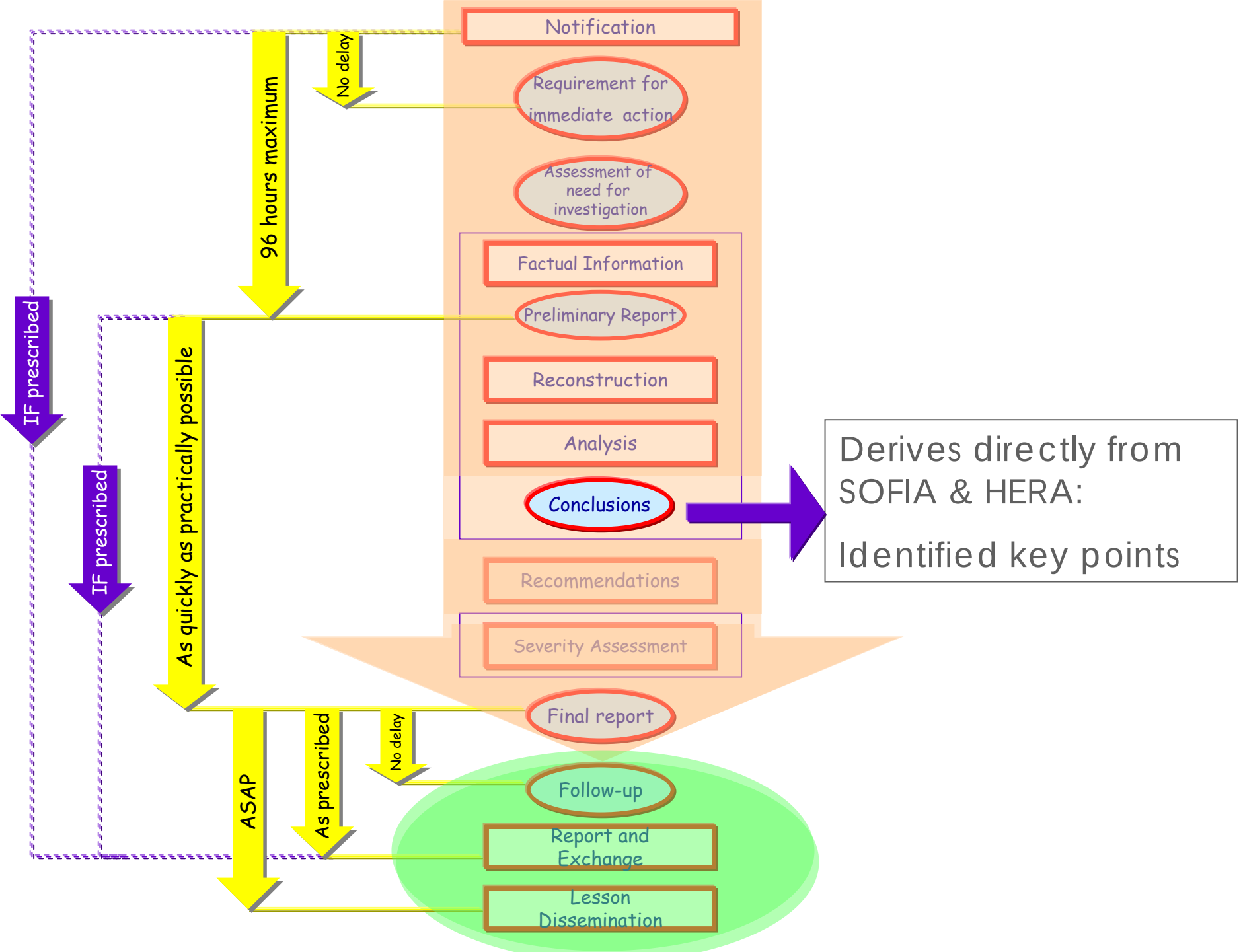
Human Factors & Manpower Unit

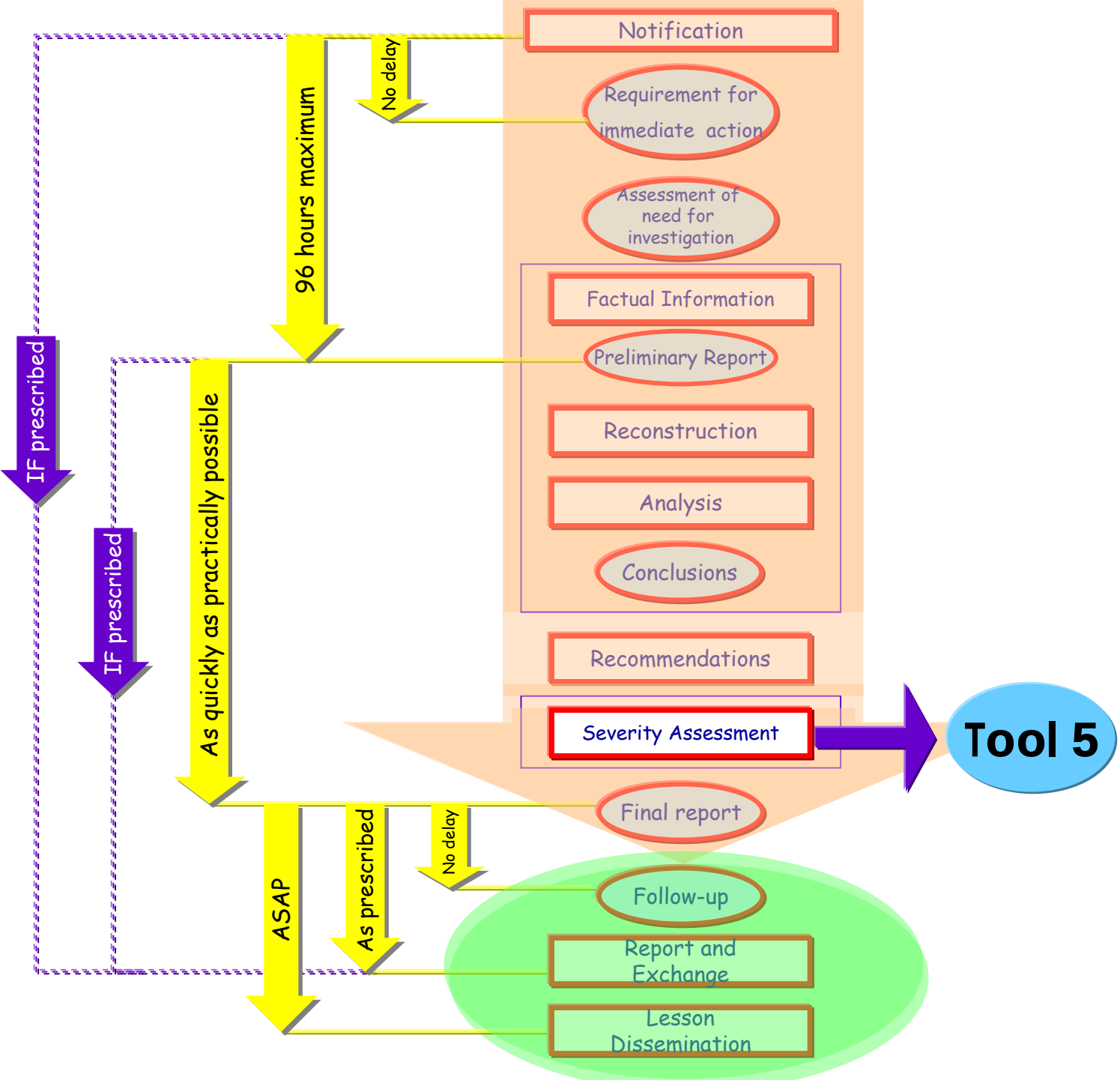
Human

ERror

in

ATM


Notification
No delay
Requirement for immediate action
96 hours maximum
Assessment of need for investigation
Factual Information
Preliminary Report
IF prescribed
Reconstruction
Analysis
IF prescribed
As quickly as practically possible
Conclusions
Derives directly from SOFIA & HERA:
Identified key points
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Lesson Dissemination


Notification
No delay
Requirement for immediate action
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Assessment of need for investigation
Factual Information
Preliminary Report
IF prescribed
Reconstruction
Analysis
IF prescribed
As quickly as practically possible
Conclusions
Recommendations
Severity Assessment
Tool 5
Final report
No delay
ASAP
As prescribed
Follow-up
Report and Exchange
Lesson Dissemination

Tool 5

SRC Mark Sheets

Risk Analysis Wizard

Step 1/3 - Occurrence Category

The occurrence category step is used to select the type of occurrence.
You can select a new risk evaluation sheet or load an existing one.

New occurrence risk analysis sheet

- Occurrences involving more than one aircraft
- Occurrences involving a single aircraft
- ATM specific occurrences

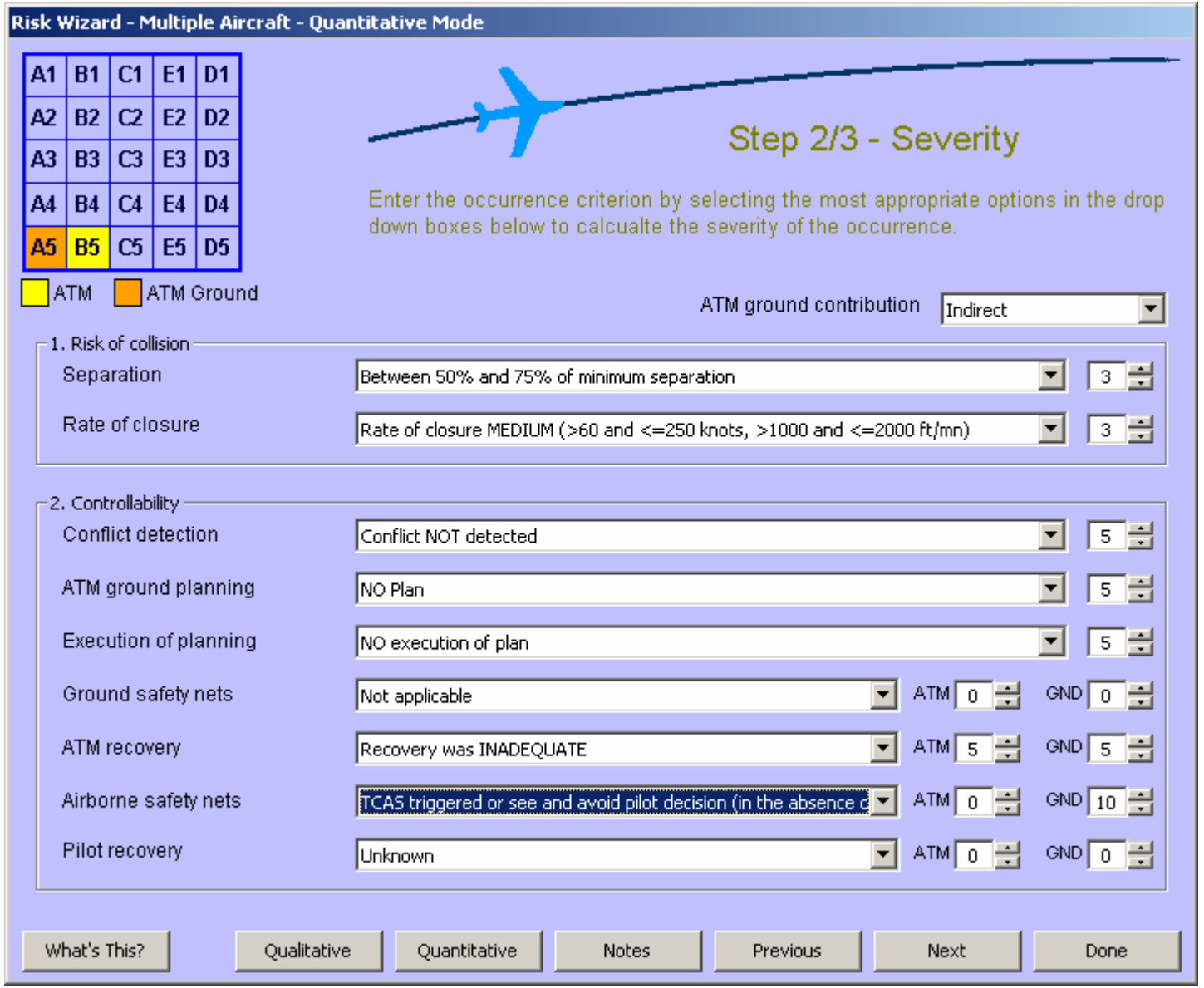
Existing risk analysis sheets for this occurrence

ID	Atm Risk	Gnd Risk	Comment
1	C5	C5	test1

What's This? | Qualitative | Quantitative | Notes | Previous | Next | Done

Tool 5

SRC Mark Sheets



Tool 5

SRC Mark Sheets

Risk Wizard - Multiple Aircraft - Quantitative Mode

Risk Analysis Completed

The risk analysis has been calculated from the data entered. You can use the buttons at the bottom of the screen to go back and adjust / fine tune the results.

Repeatability					
	A1	B1	C1	E1	D1
	A2	B2	C2	E2	D2
	A3	B3	C3	E3	D3
	A4	B4	C4	E4	D4
	A5	B5	C5	E5	D5
	Severity				

ATM Risk ATM Ground Risk

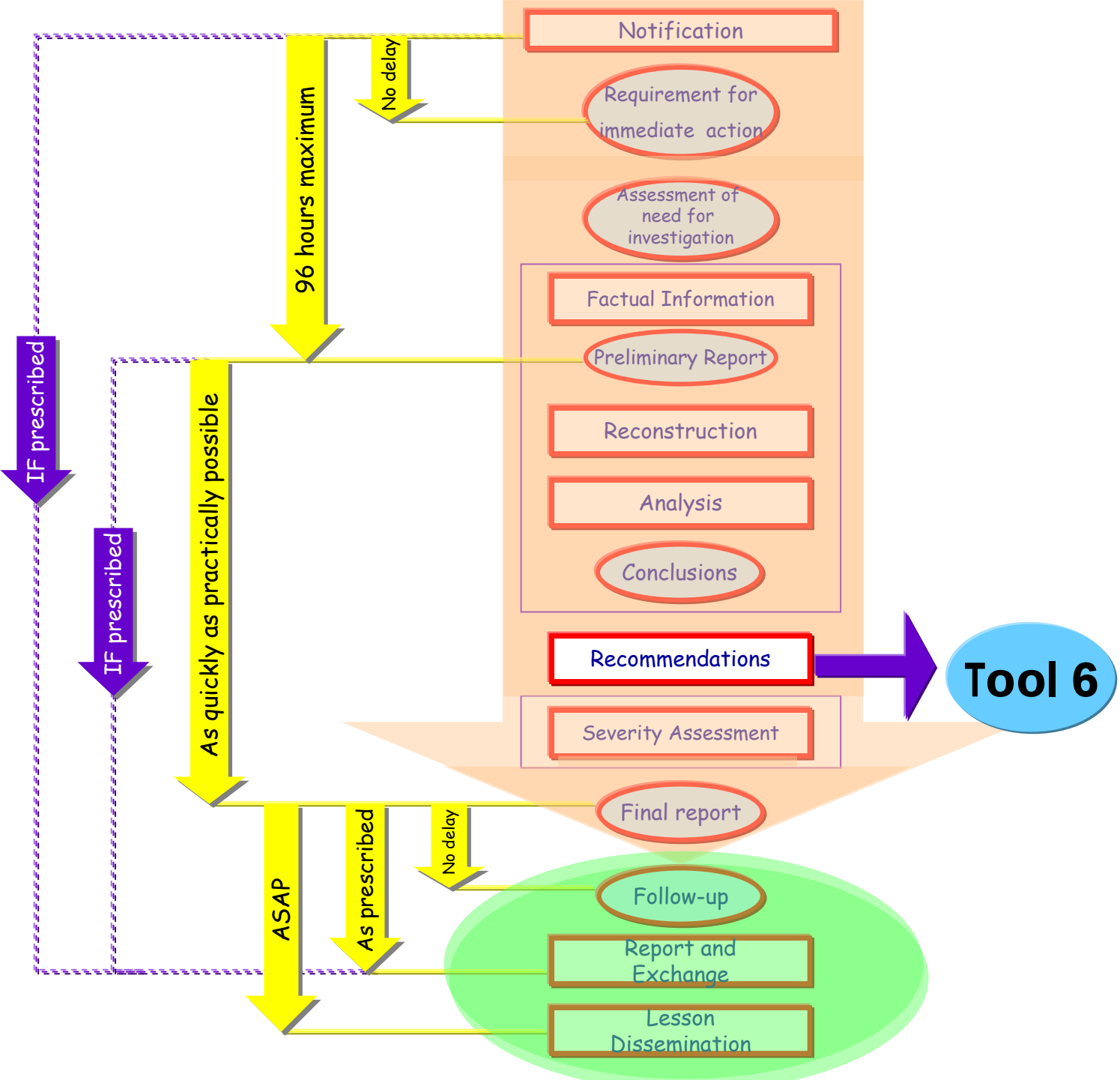
Risk Calculations

ATM Risk	B3
ATM-Ground Risk	A3

Reliability Indicators

Overall	87%
Severity	90%
Repeatability	84%

What's This? | Qualitative | Quantitative | Notes | Previous | Next | Done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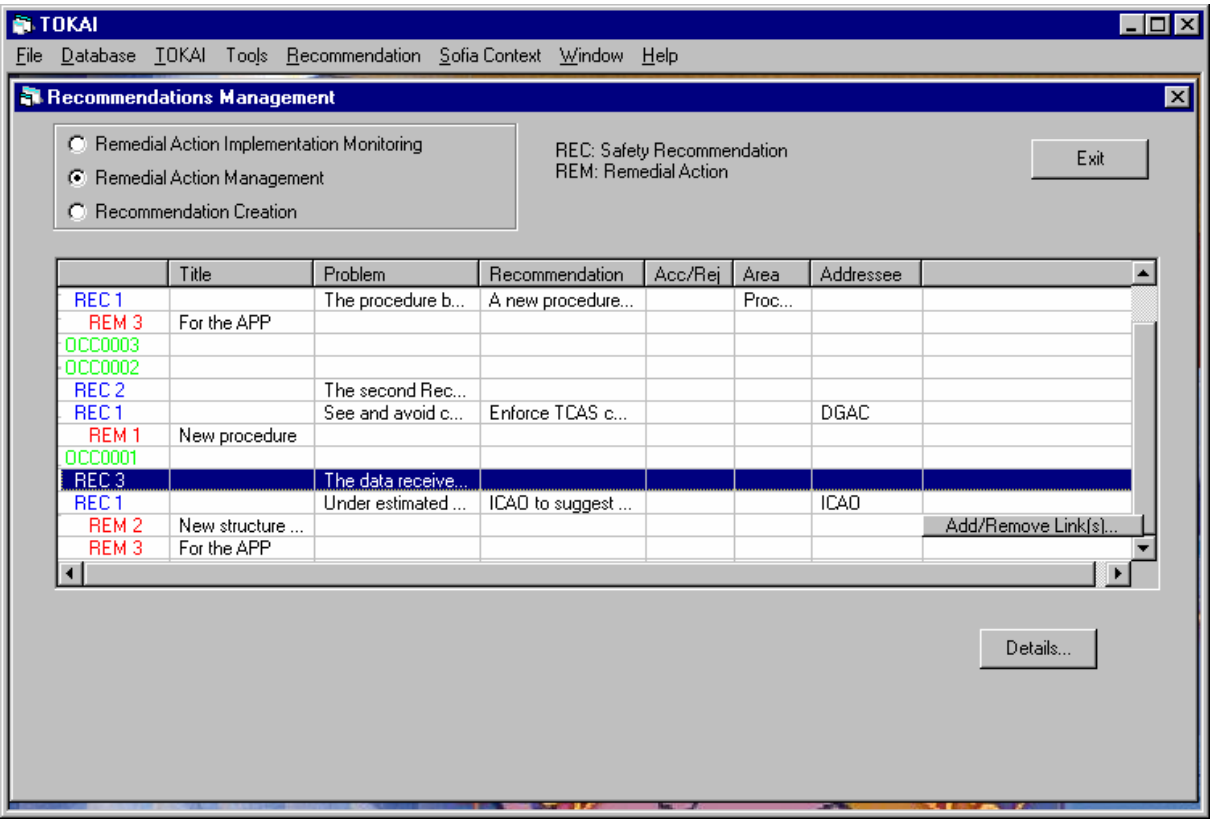
IF prescribed
Conclusions
Recommendations
Tool 6
Severity Assessment
Final report
No delay
As prescribed
ASAP
Follow-up
Report and Exchange
Lesson Dissemination

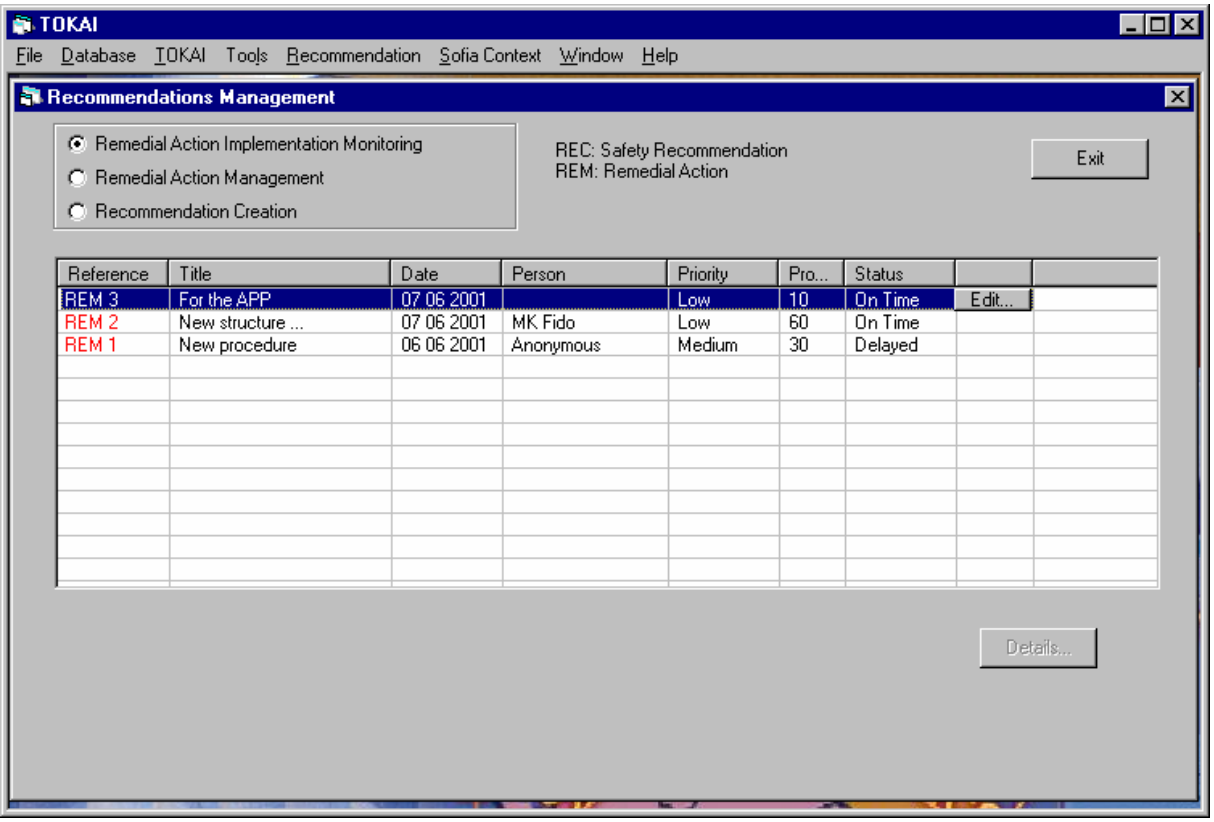
Tool 6



Safety Recommendations functions:

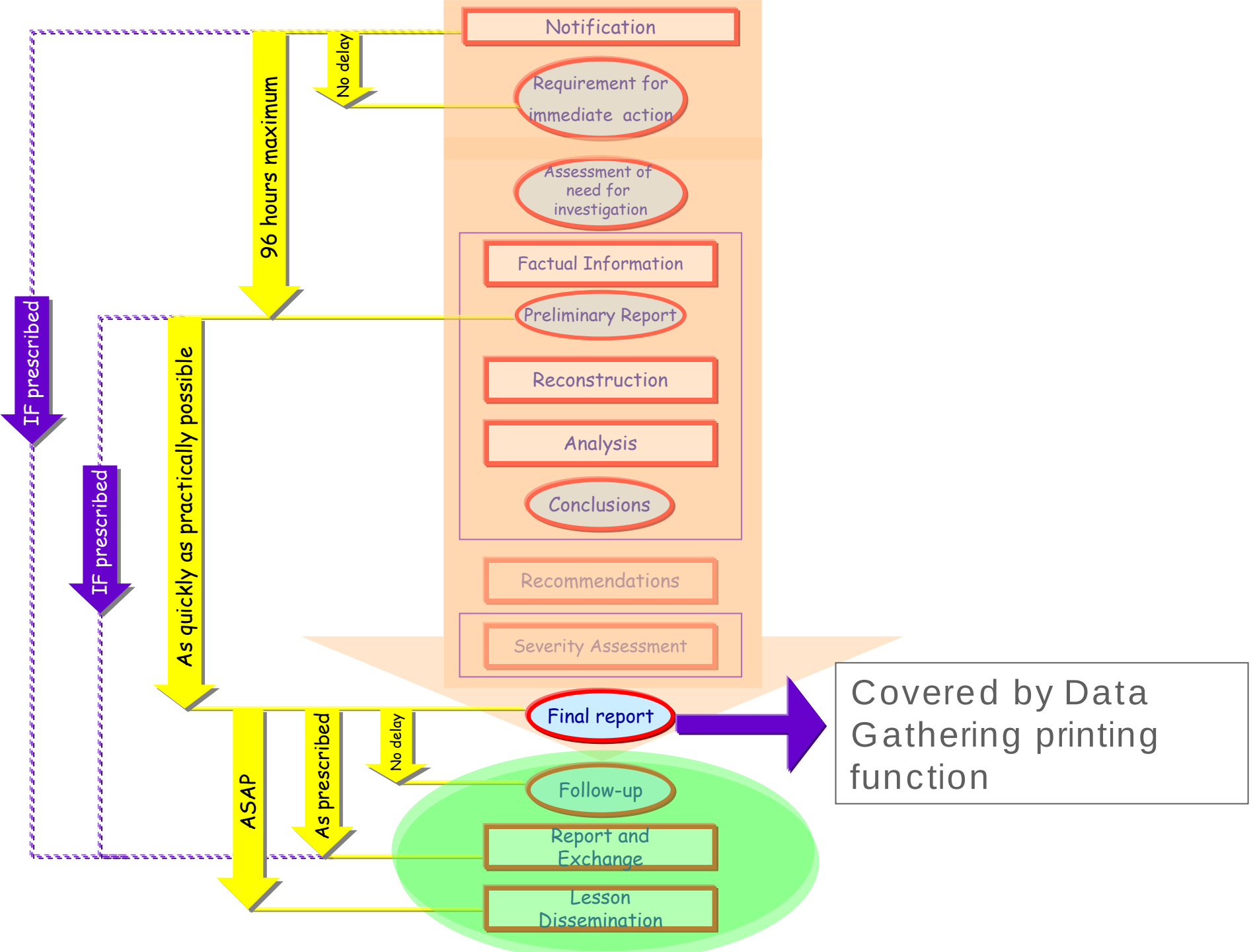
- at creation, verify existing (two way search)

Tool 6



Safety Recommendations functions:

- at follow-up, monitor implementation


Notification
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Final report
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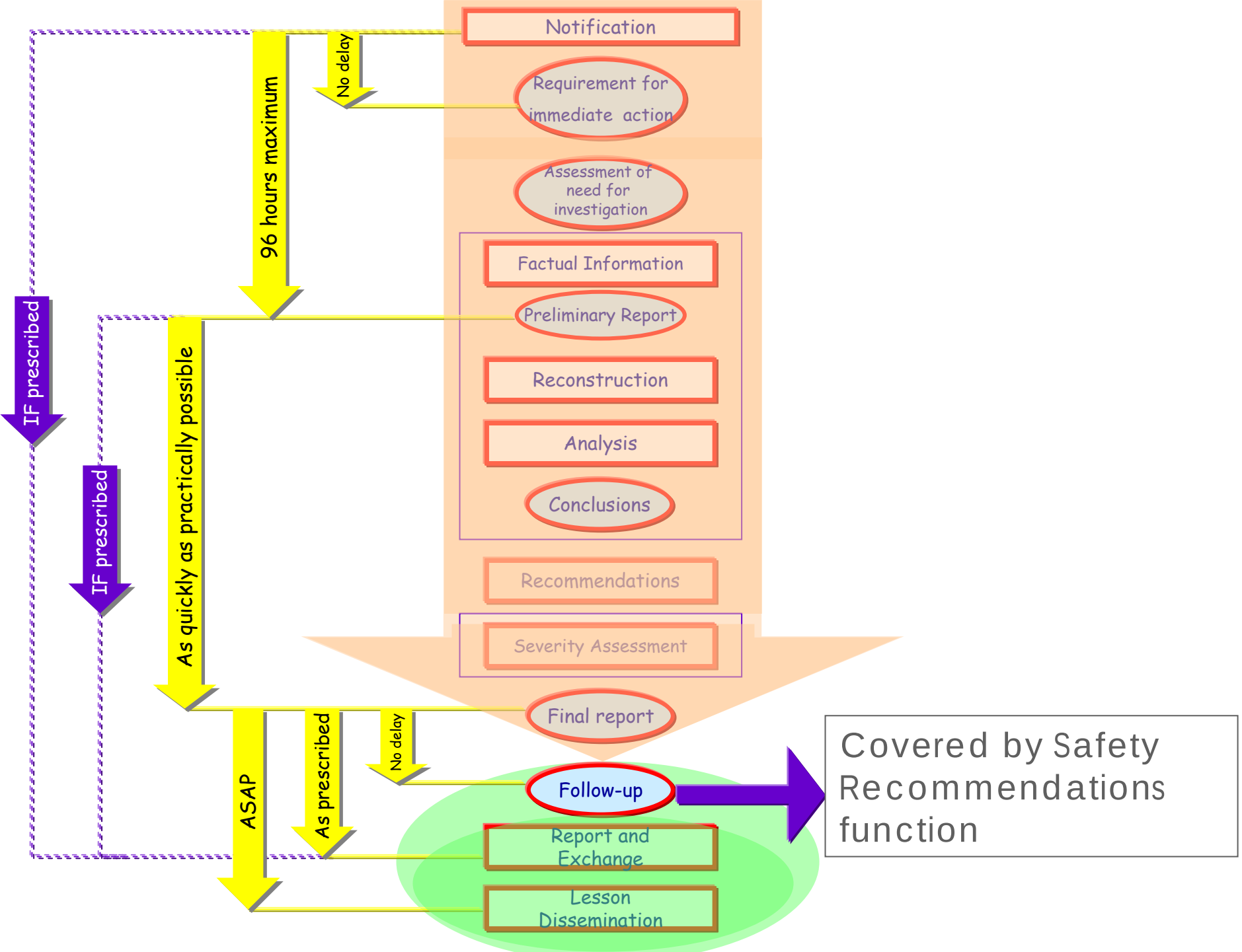
ASAP
As prescribed
Follow-up
Report and Exchange
Lesson Dissemination
Covered by Data Gathering printing function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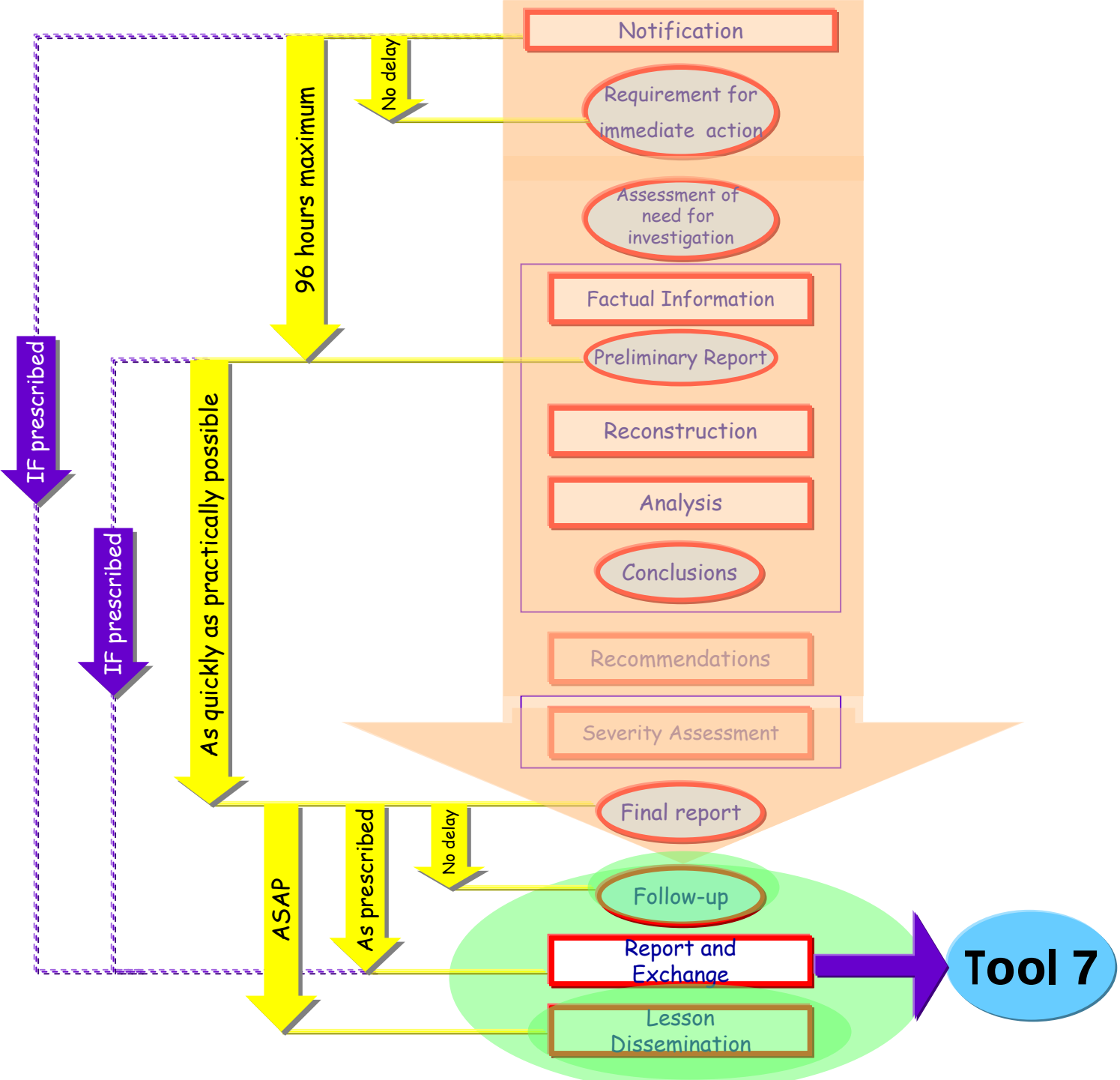
Lesson Dissemination
Covered by Safety Recommendations function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Reconstruction
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Conclusions
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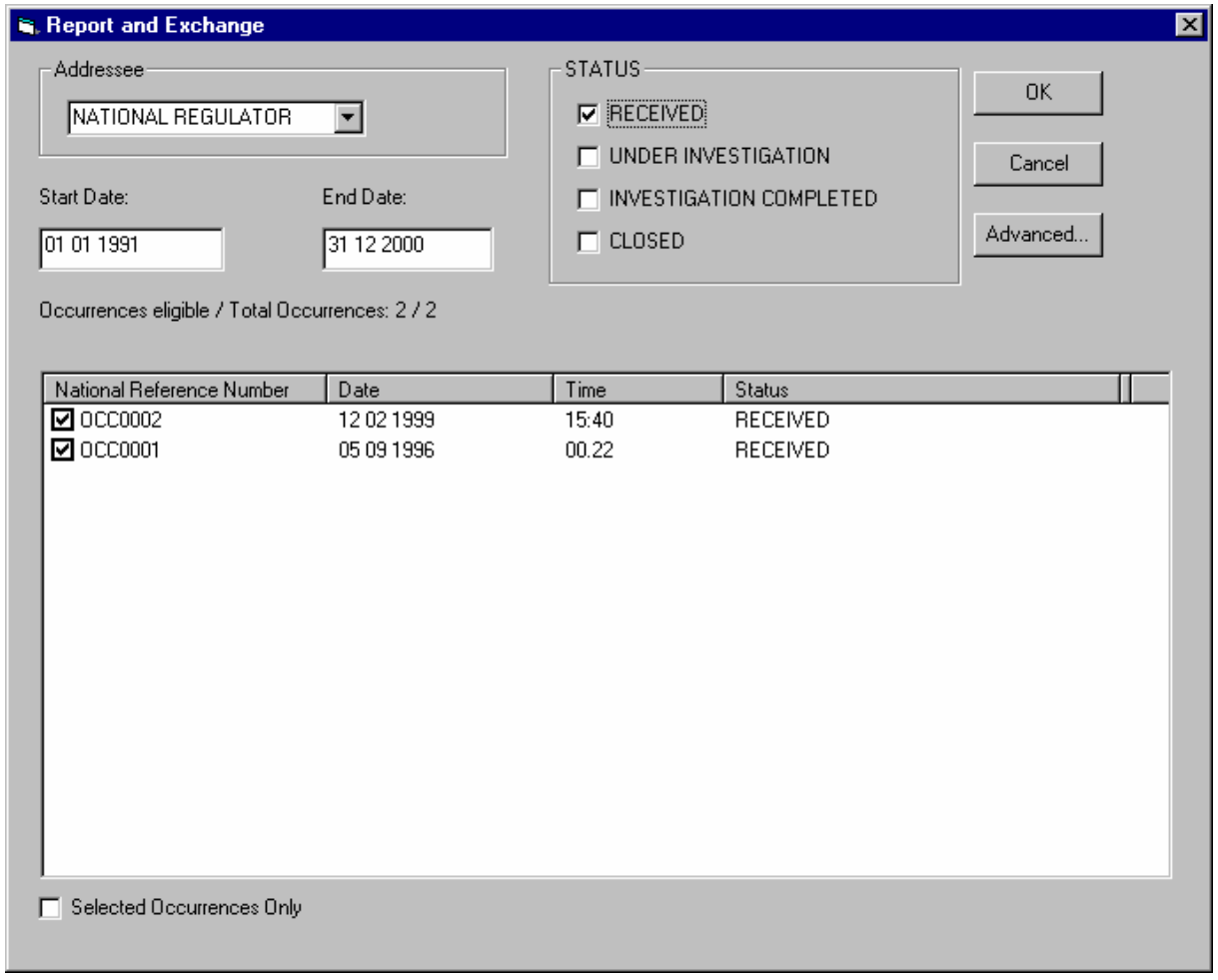
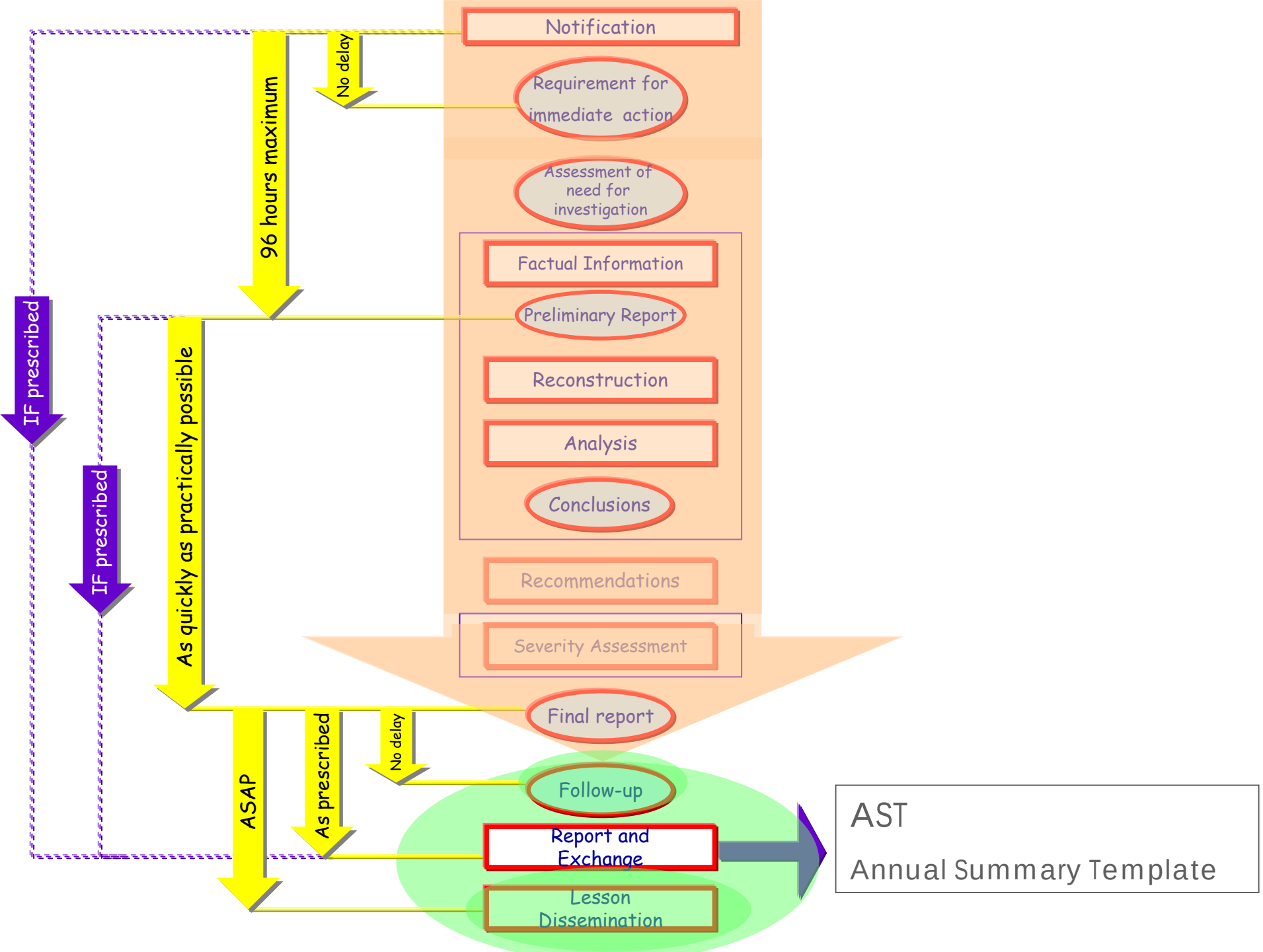
Recommendations
Severity Assessment
Final report
ASAP
As prescribed
No delay
Follow-up
Report and Exchange
Tool 7
Lesson Dissemination

Tool 7



Configuration files permit to define for each recipient:

- type of occurrences to be reported/exchanged
- disable fields within selected occurrence files; or
- disidentify fields within selected occurrence files


Notification
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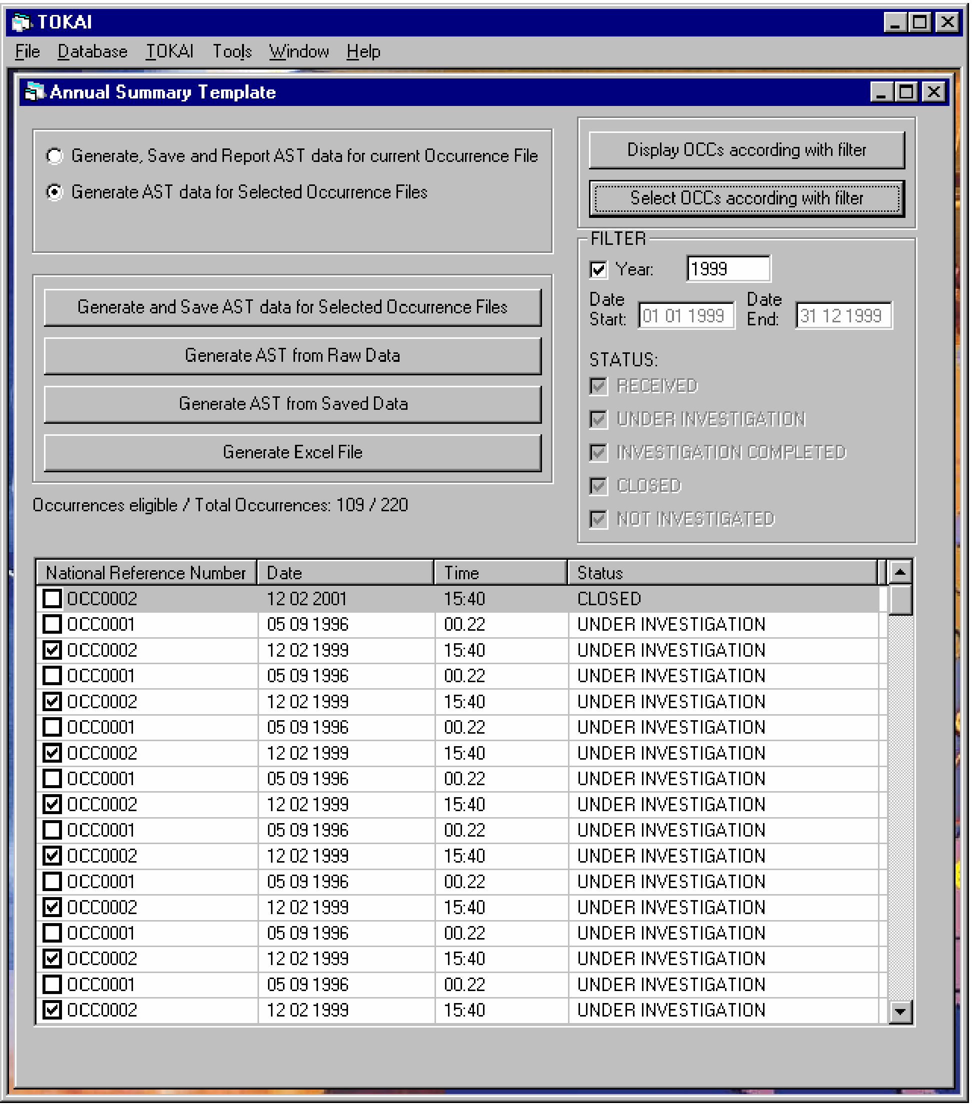
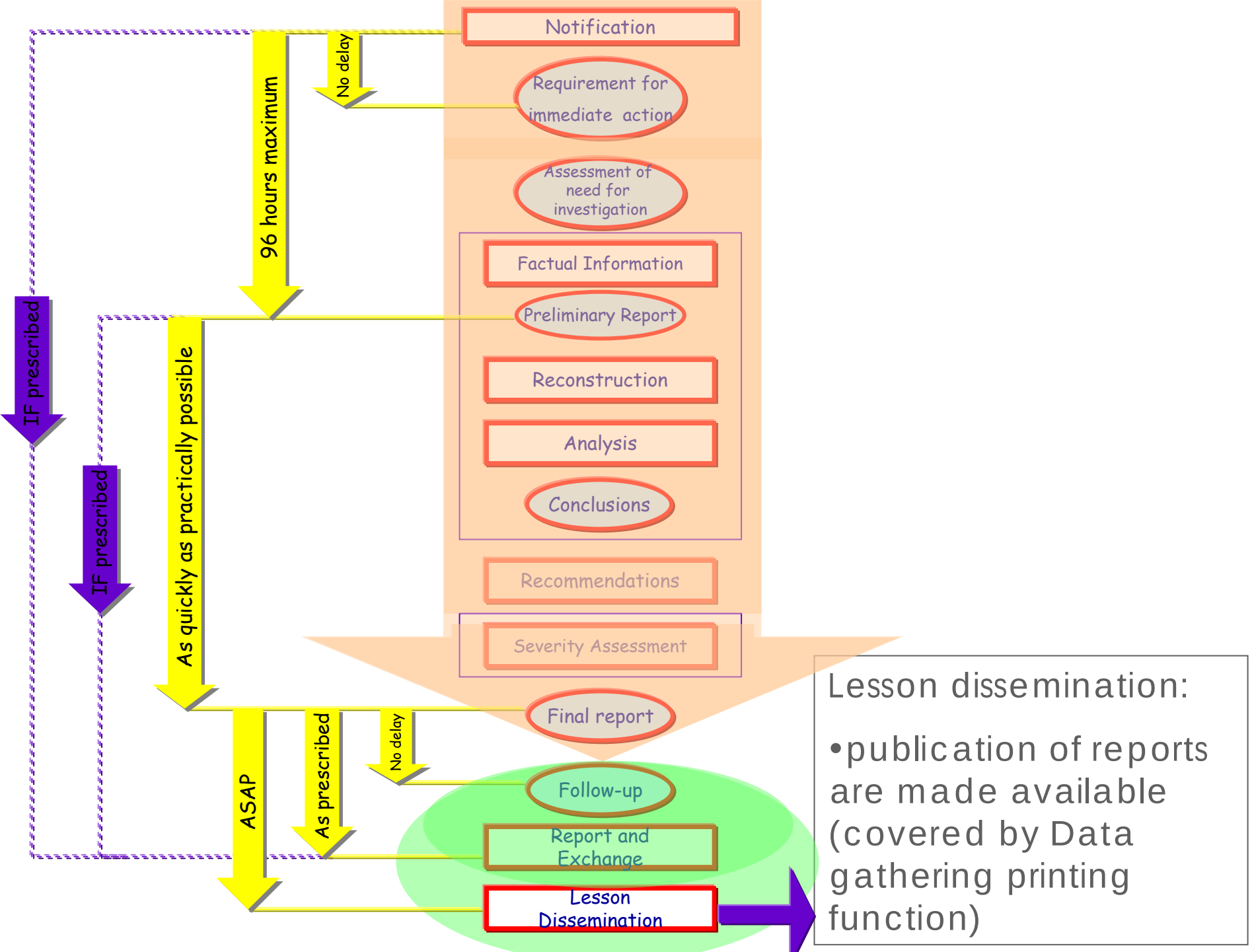
Follow-up
Report and Exchange
Lesson Dissemination
AST
Annual Summary Template

SRU



AST module:

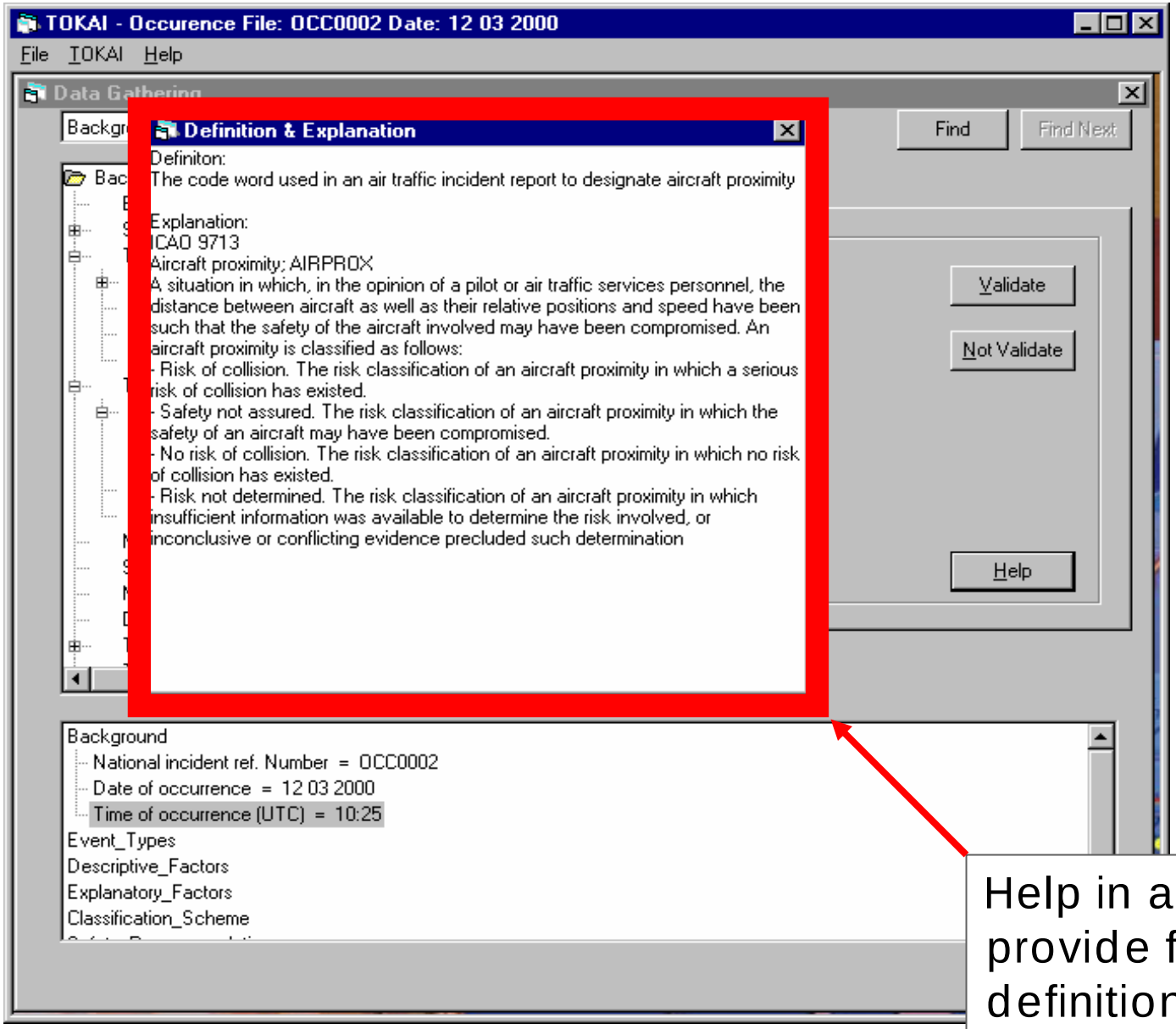
- generates automatically the Annual Summary Template
- provides for a means to verify if occurrence file is consistent with AST (and subsequently ESARR2) requirements



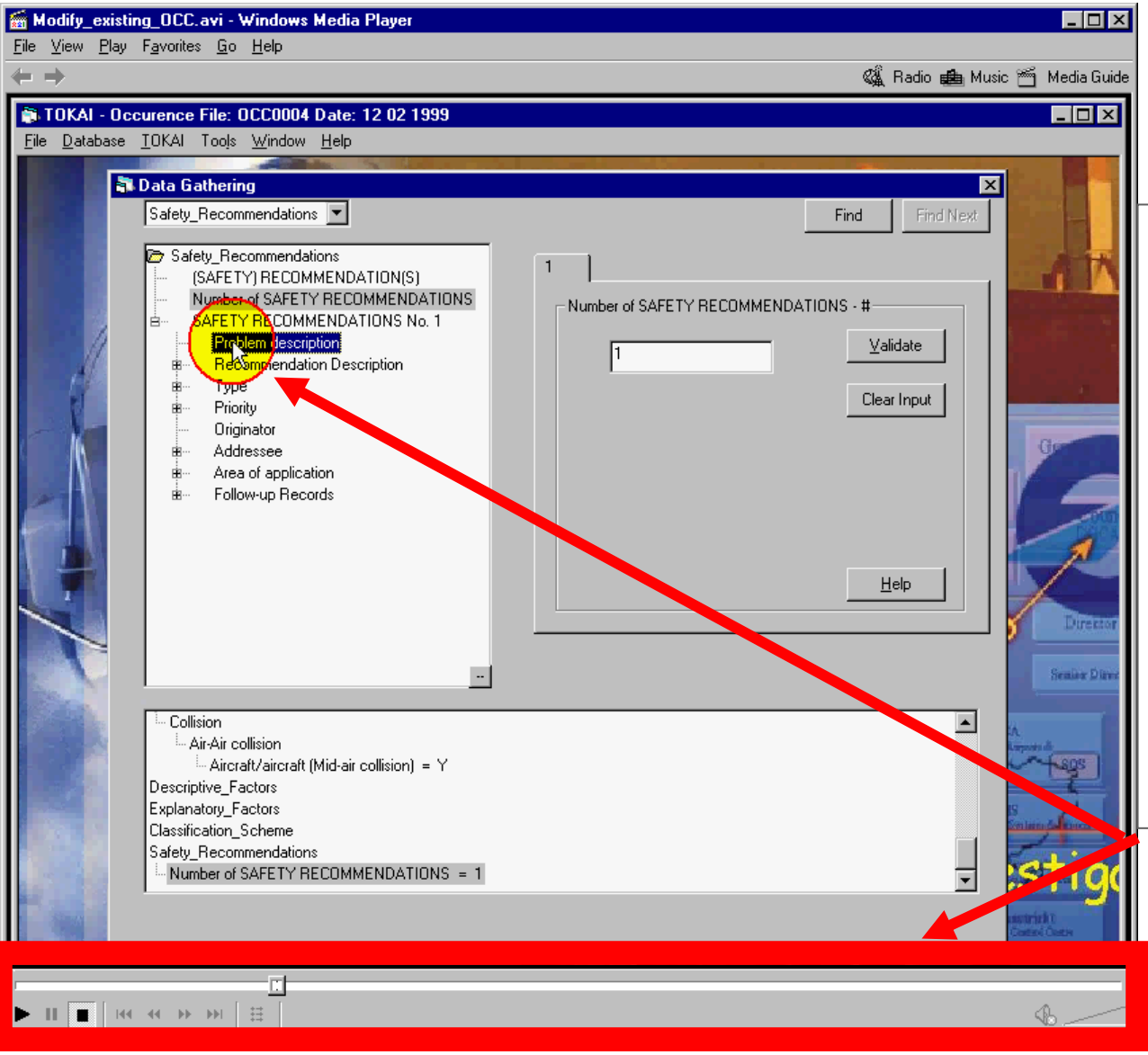
Lesson dissemination:

- publication of reports are made available (covered by Data gathering printing function)

Help functions



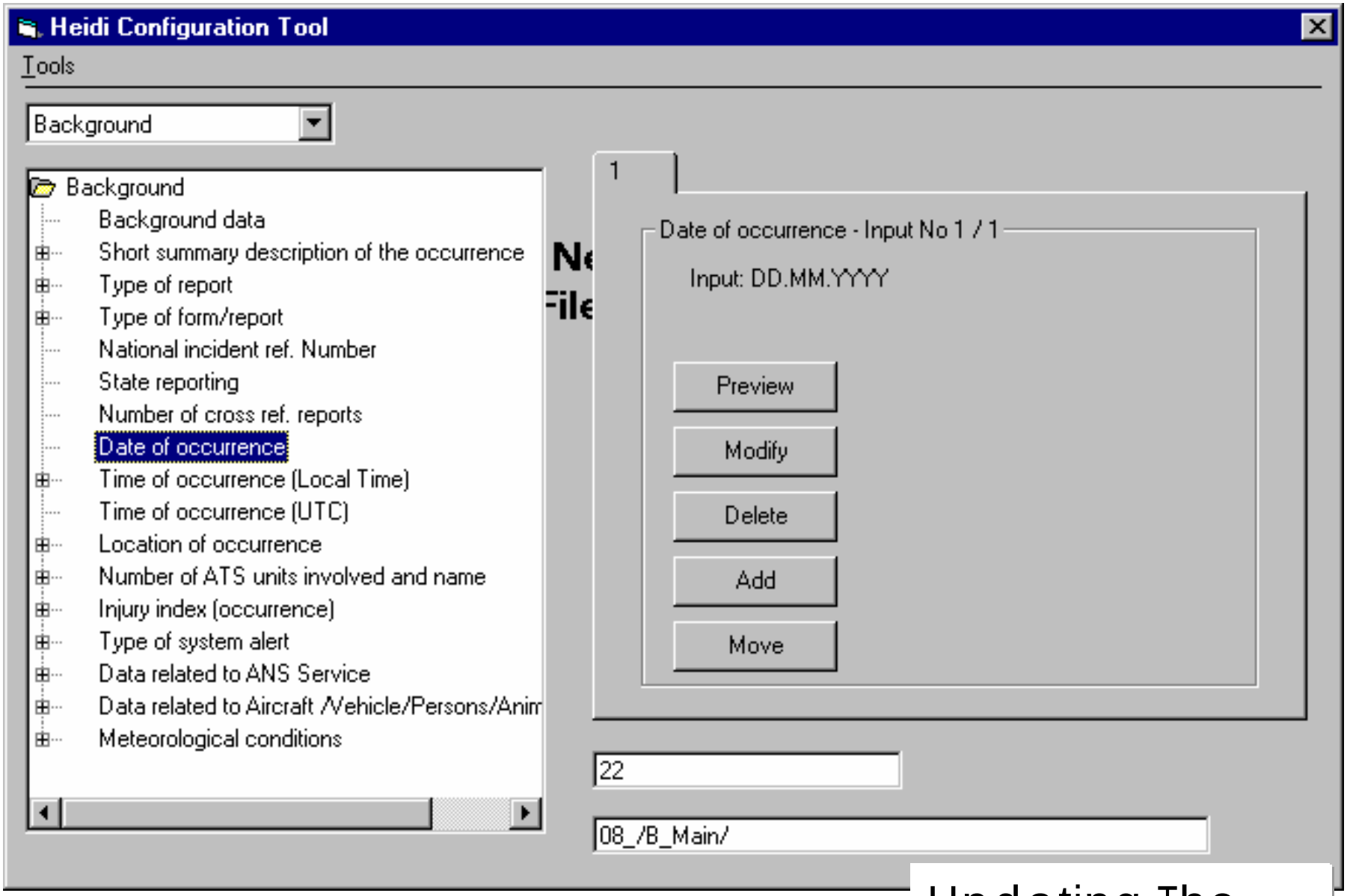
Help in all menus will provide for the HEIDI definition and comments/examples



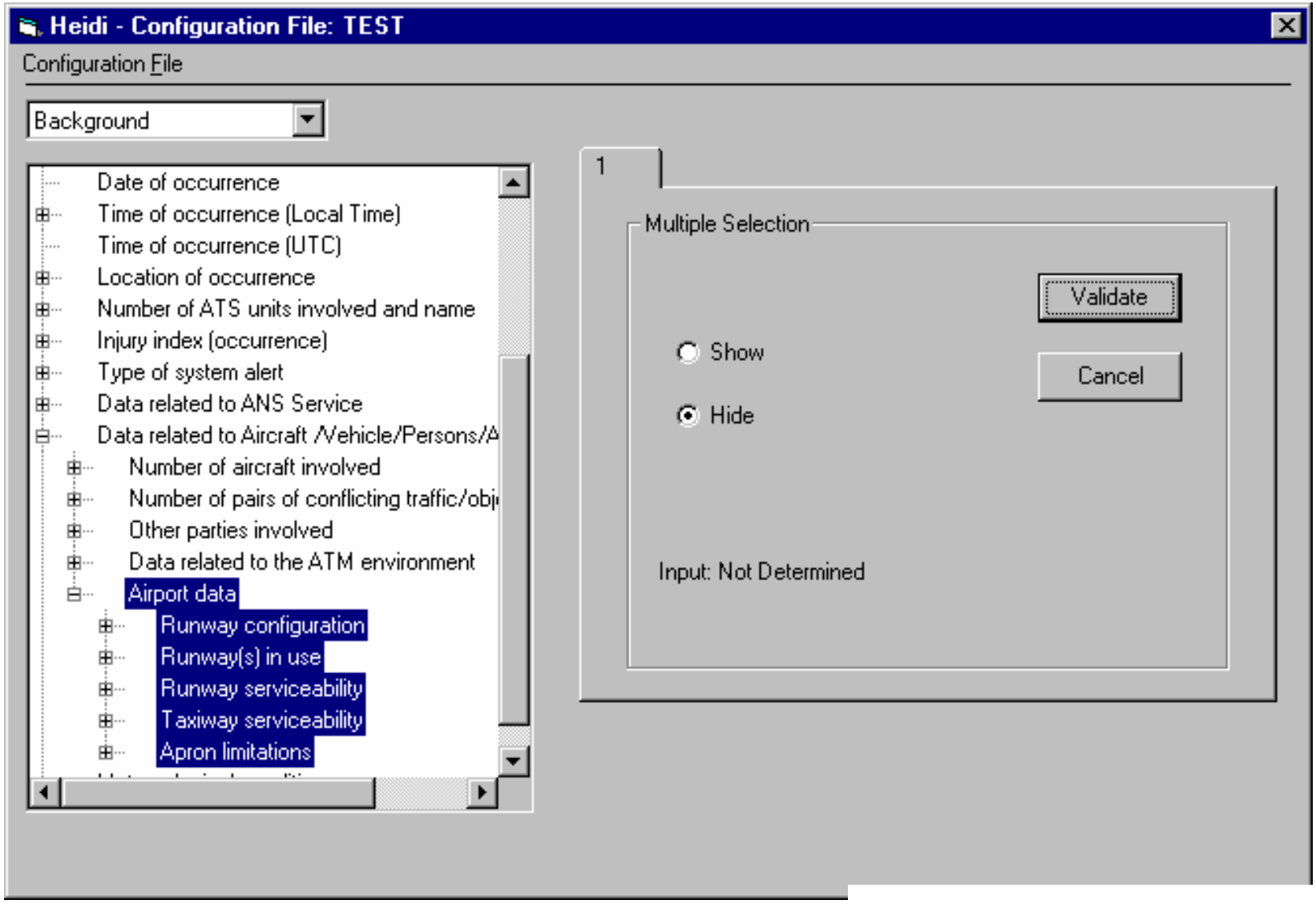
AVI files to recall the sequence of inputs required to operate a given function

These can be called anytime when performing a function and swap back to actual use of the function can be made.

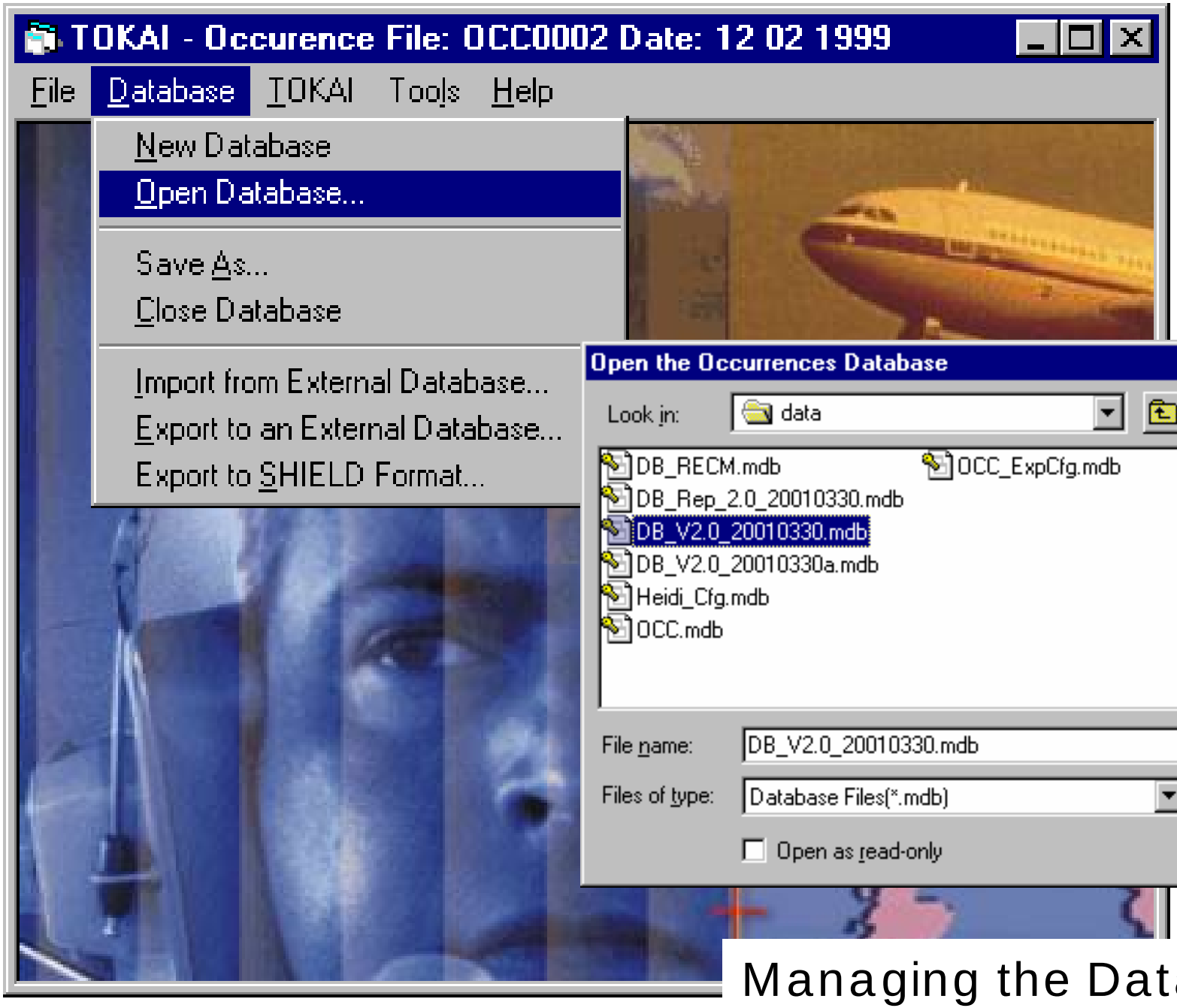
System Management Functions



Updating The HEIDI Taxonomy



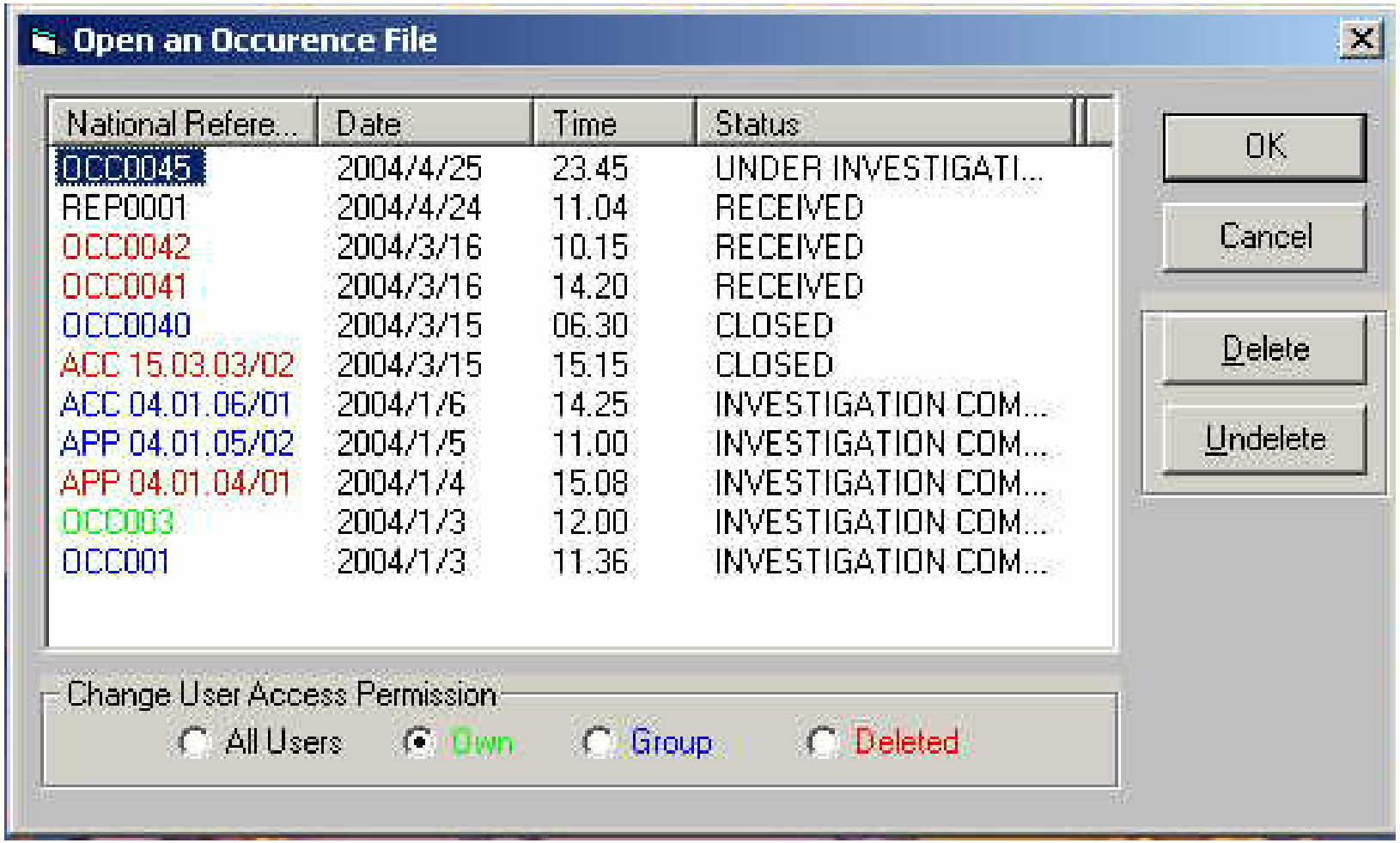
Customising the HEIDI Taxonomy



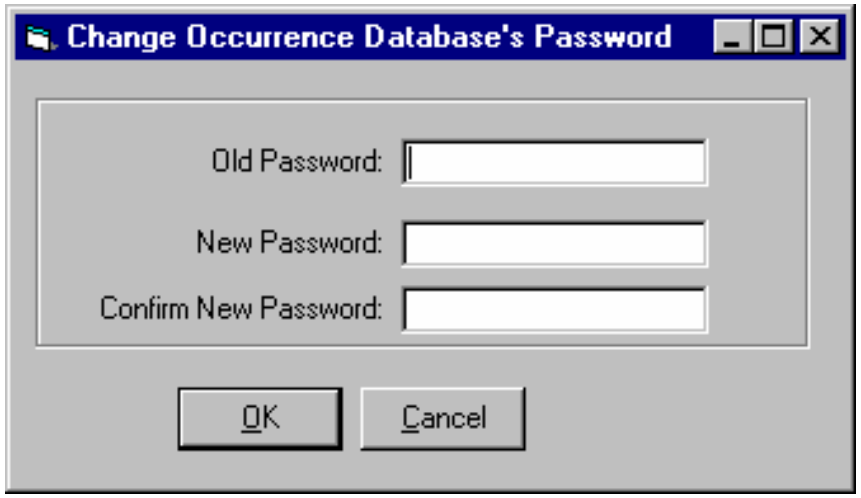
Managing the Databases

Other functionalities

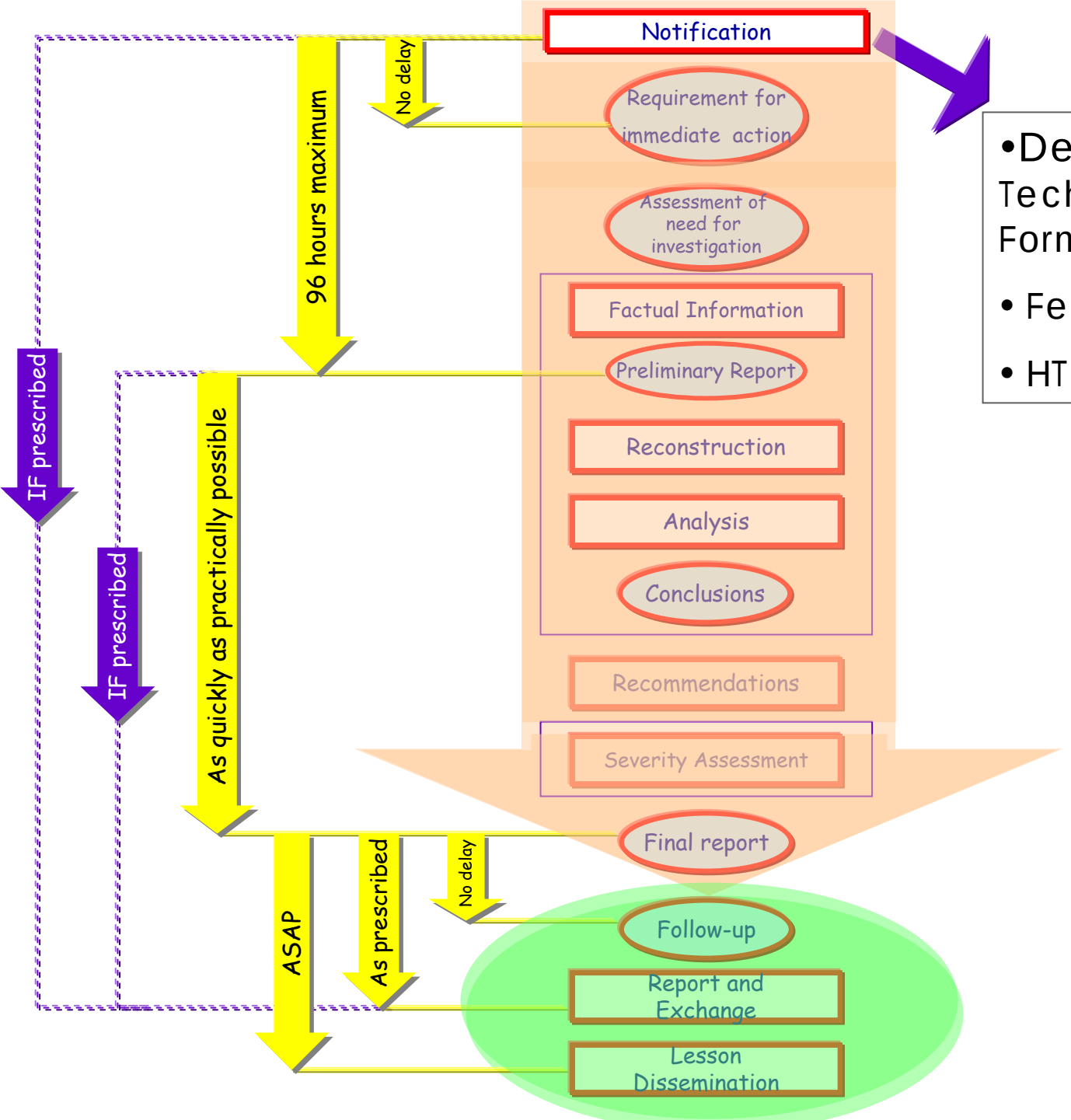
User Access Rights



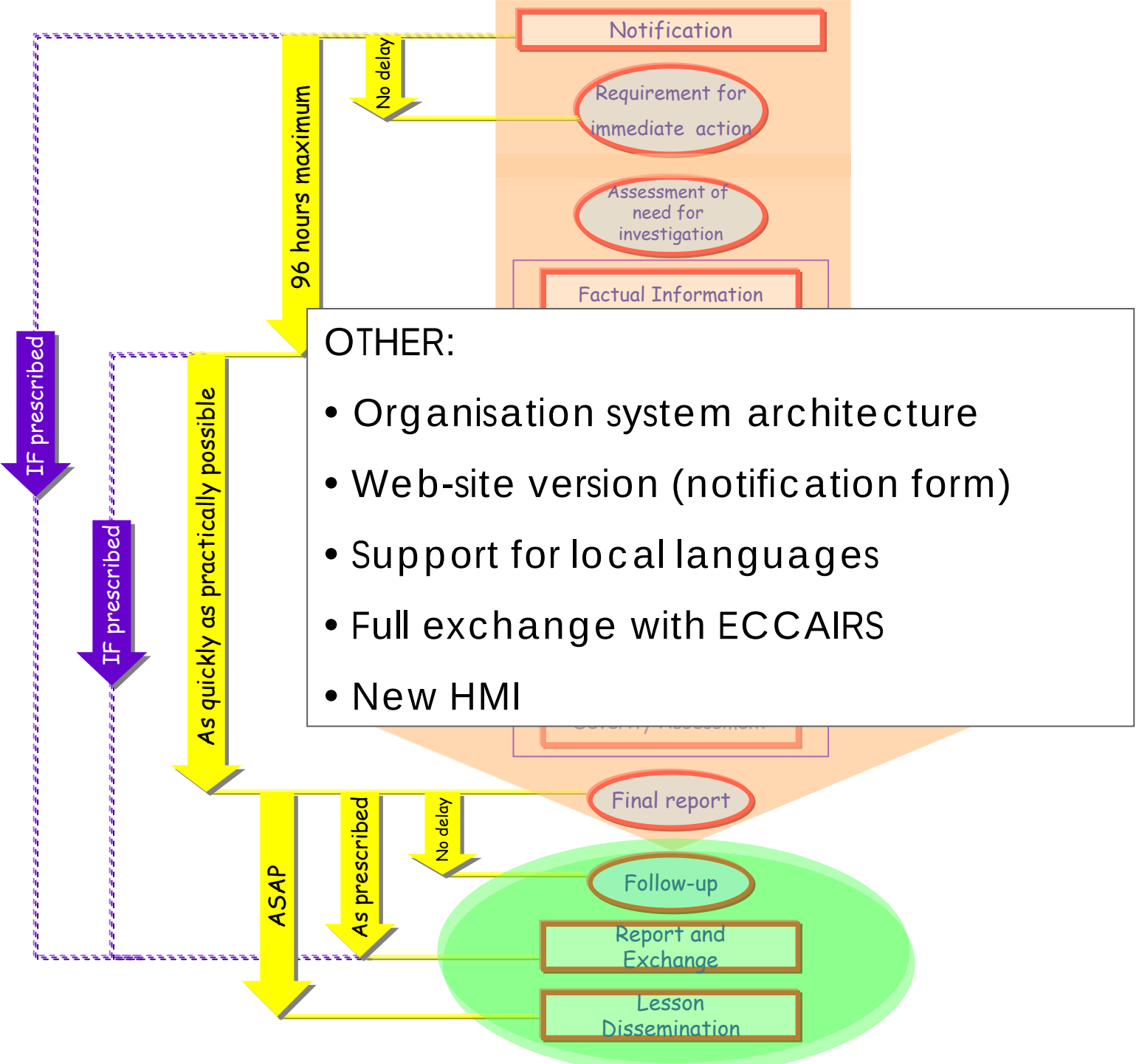
Database security



Current and Planned Validations



- Development of Technical Fault Report Form
- Feedback link
- HTML form


Notification
No delay
96 hours maximum
Requirement for immediate action
Assessment of need for investigation
Factual Information
IF prescribed
IF prescribed
As quickly as practically possible
OTHER:
• Organisation system architecture
• Web-site version (notification form)
• Support for local languages
• Full exchange with ECCAIRS
• New HMI
Final report
No delay
ASAP
As prescribed
Follow-up
Report and Exchange
Lesson Dissemination

Thank you for your attention !