



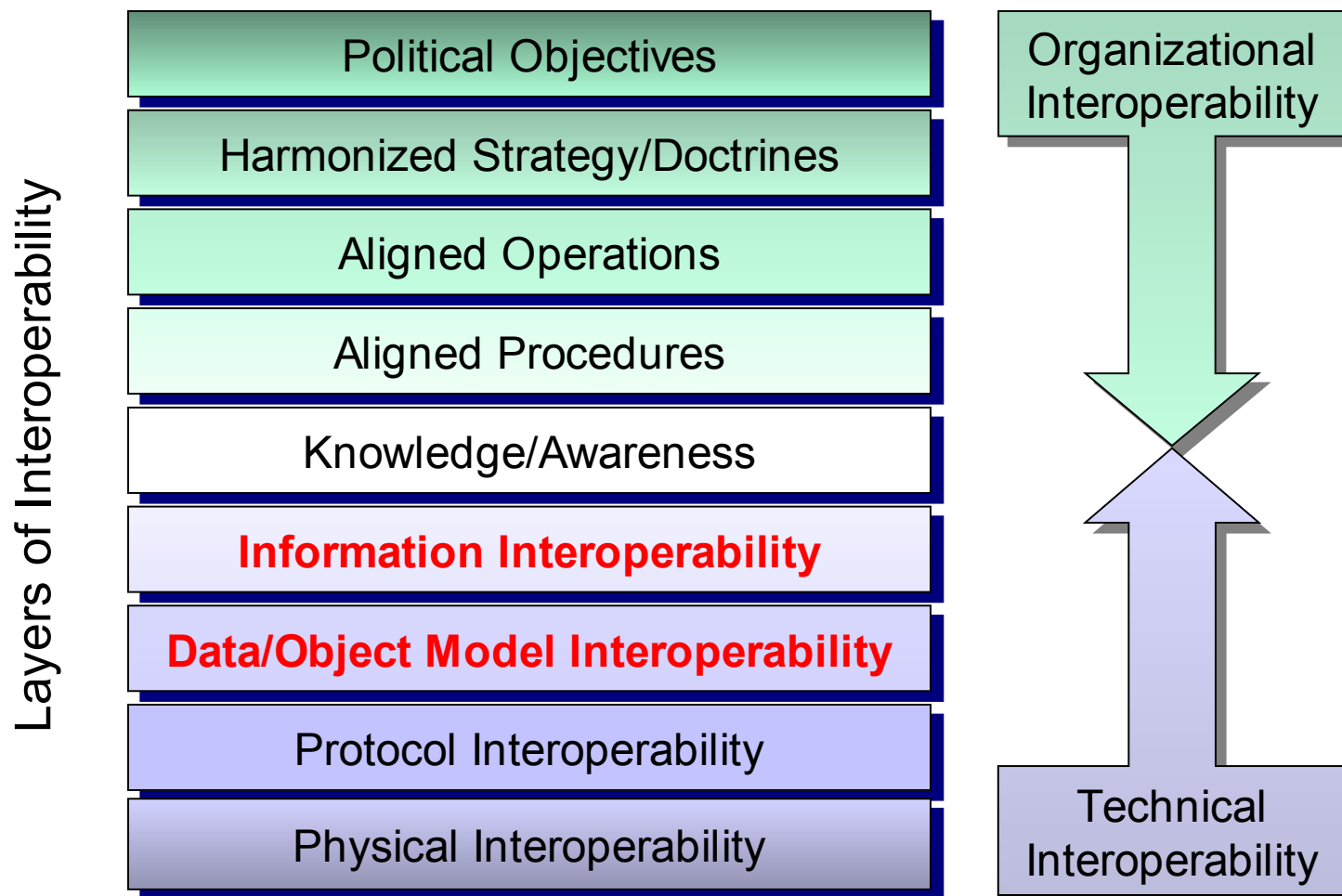
# The Tactical Situation Object


The work achieved by the  
***Dasis*** FP6 project  
and carried on in the frame of  
the CEN ISDEM

(Information **S**ystem for **D**isaster and **E**mergency **M**anagement)  
workshop

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# Interoperability Model





# The origin of the TSO (Tactical Situation Object)

- The need for finding a common language for exchanging information about the situation during operations (some work was initiated during the EGERIS FP5 project)
- It was confirmed during the users interviews during the requirements phase of the *Dasis* project
- First version of the definition of an XML interface in 2005
  - Demonstrated recently during *Dasis* trials end September 2006

# The 3 roots of the TSO

- ***Dasis*** project discussions with responders involved in daily and large rescue operations
  
- The NATO LC2IEDM model
  - Extensive experience of NATO for cooperation
  - A complete data model
  - BUT
    - Targeted to the military domain
  
- The OASIS-Open (**O**rganization for the **A**dvancement of **S**tructured **I**nformation **S**tandards standards)
  - Interoperability with the CAP (Common Alert Protocol) has been analysed
  - And also with regards to EDXL-DE



# The content of the TSO (high level description)

- Identification information:
  - the identifier, the originator and the date of creation of the TSO
- Description of the event:
  - type of the event, its extent, the number of casualties, the consequences on the environment, its criticality
- Description of the resources:
  - which resources are already used, which resources are available
- Description of the missions:
  - the tasks which are on-going, their status, the teams and resources which are engaged for them, their planning



# What is the use of the TSO

- During an event, the TSO is used to exchange information about the situation:
  - Who is the sender ?
  - What kind of event? How many casualties?
  - Which resources are involved ?
  - Which activities are planned or on-going?
- Each responding agency may create and provide the TSO files to other participating agencies
  - The TSO is a format
  - Each agency provides the information that it is ready to share
- A coordination body may consolidate the information into a single global view using the different received TSO

# TSO focus

- The TSO is only a structure for containing information:
  - In XML format
  - It is defined in 2 documents:
    - description of the XML structure (XSD)
    - dictionary of permitted values (=codes)
  
- Issues considered
  - Interoperability / language barriers
  - Backward / forward compatibility
  - Several types of users with different constraints
    - A police officer is not interested in the complete nomenclature of fire vehicles, and vice-versa

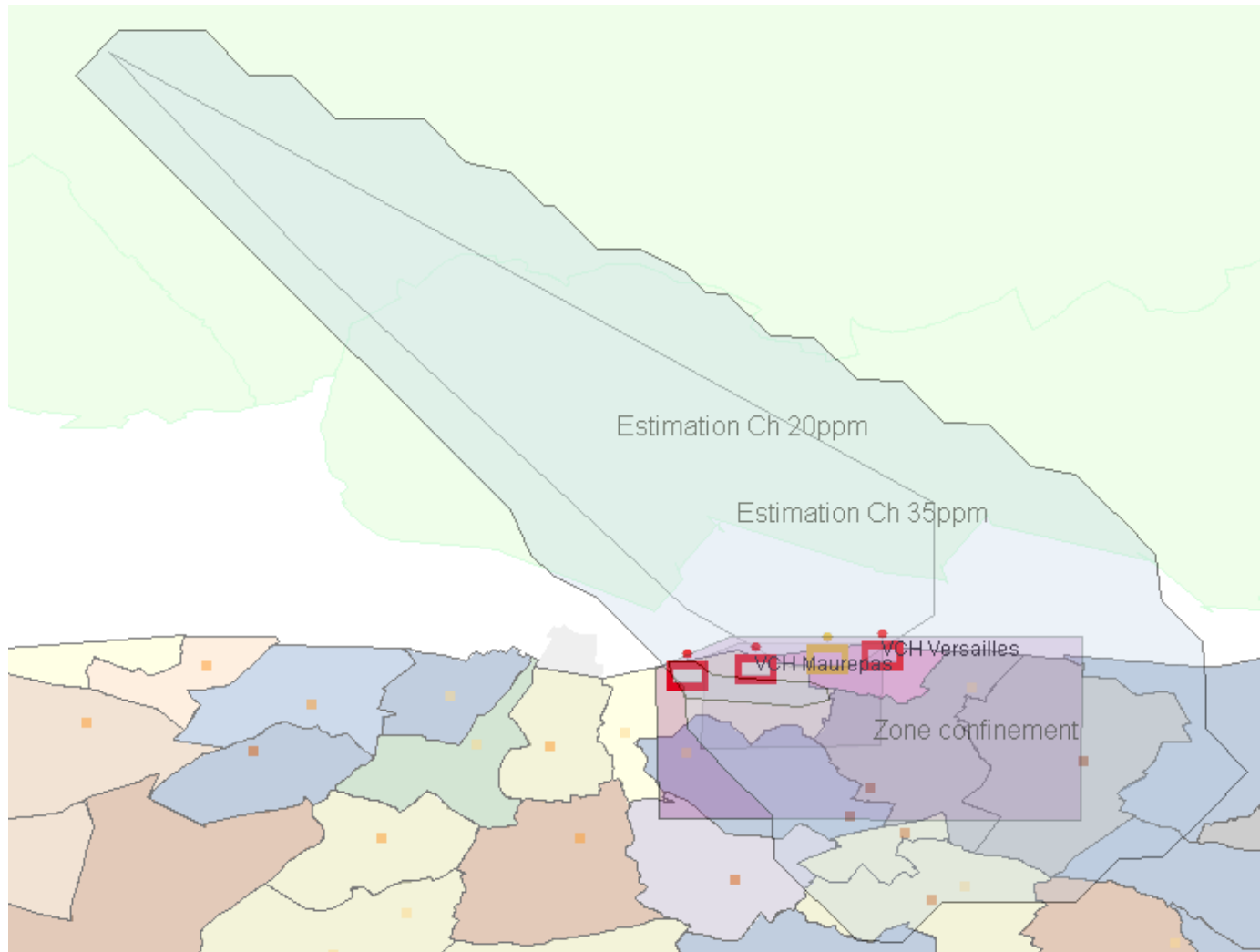
# An extract of the structure: the description of the event

Item	Cardinality	Description
TYPE/CATEGORY	[1..n]	It provides the description of the scenario which leads to the event. Typical values are: Fire, explosion, Accident (traffic, etc.), Pollution (chemical, bacteriological, radiological, nuclear), Criminal / law enforcement, Life security / humanitarian (search, rescue, evacuation, etc.), Property security (unsafe structure, etc.). The complete list is in the data dictionary.
TYPE/ACTOR	[1..n]	It provides the type of the endangered object(s). Typical values are: Human, Animals, Critical site, Vehicle (car, truck, ship, aircraft, train, metro, tramway, cable car, etc.). The complete list is in the data dictionary.
TYPE/LOCATION	[1..n]	It provides the type of the location where the event is. Typical values are: Urban area (street, house, plant, public place, private place, etc.), Countryside / mountain area (forest, farm, field, etc.), Humid area (sea, river, lake, etc.) Transportation place (road, railway, airplane, etc.), Critical site (Seveso, etc.). The complete list is in the data dictionary
TYPE/ENV	[0..n]	It provides the general environment (or context) of the event. Typical values are: Natural disaster (flood, landslide, storm, snow, earthquake, tsunami, etc.), Man made disaster, Civil disorder. The complete list is in the data dictionary

# Examples of codes for filling the field EVENT/TYPE/CATEGORY

<b>Acronym</b>	<b>Category</b>	<b>Definition</b>
ACC	Accident	An unfortunate event, especially one causing physical harm or damage, brought about unintentionally
CRIM	Criminal / law enforcement	An event consequence of a violation of law.
EXPL	Explosion	An event consequence of a sudden release of any kind of energy.
FIRE	Fire	An event consequence of a rapid, persistent chemical reaction that releases heat and light, especially the exothermic combination of a combustible substance with oxygen
LIFE	Life security / humanitarian	An event in which persons are in immediate danger including search, rescue, and evacuation of persons and animals.

# Example of information provided in a TSO file





## A few *Dasis* tools for using the TSO

- The *Dasis* project has developed several tools who are able to “read, write and modify” TSO files
- An Open source module (the TSO editor) is providing the most useful capabilities in a web-browser

# The TSO Editor

The screenshot displays the TSO Editor web application running in Microsoft Internet Explorer. The browser's address bar shows the URL `http://dsf01.oasis-fp6.org:8000/oasis/`. The application header includes the "Oasis" logo and the text "TSO Editor - Tactical Situation Object Editor".

The interface is divided into several sections:

- Top Bar:** Contains a "Logout" button, the user information "User: COS@Tactic78 Node", and language selection options for "En", "Es", "Fr", and "Pt".
- Left Panel:** Features a "Shape Files" section with icons for various file types and an "Opened TSO Files" tree view. The tree view shows a folder structure for "TSO Congres Pau" containing an "Event" folder with items like "Estimation Ch 35ppm", "Estimation Ch 20ppm", "Zone Exclusion", "Zone confinement", and "Mesures Ch 20 ppm", as well as "Missions" and "Resources" folders with specific VCH and VTU1 objects.
- Central Map:** Displays a tactical map of a region in France. Key locations labeled include WEST BERKSHIRE, ESTIMATION Ch 20ppm, VCH Maurepas, VCH Versailles, VCH Montigny, VCH Trappes, MAREIL-LE-GUYON, JOURS-PONTCHARTRAIN, LE TREMBLAY-SUR-MAULORE, MAUREPAS, ELANCOURT, TRAPPES, SAINT-RÉMY-L'HONORÉ, COIGNICRES, LE MESNIL-SAINT-DENTS, and MONTIGNY-LE-BRI. A red box highlights a "Zone confinement" area around the VCH Montigny and VCH Trappes locations. A scale bar at the bottom right of the map indicates 0, 0.8, 1.6, and 2.4 km.
- Right Panel:** Shows a small world map and technical details for the current map view:
  - Proj: WGS 84 / Geographic
  - Units: Degree
  - Min.X: 1.5730 Max.X: 1.3870
  - Min.Y: 51.4160 Max.Y: 51.5090
  - Cur.X: -1.470 Cur.Y: 51.418
  - Dist:

The bottom status bar of the browser shows "Terminé" on the left and "Internet" on the right.



# How the TSO is used in an operational system

- In an operational system, the XML structure and the codes complexity are hidden from the user
- The TSO information is displayed using the language and the symbols used by the organisation



# The CEN workshop

(CEN: European standardisation committee)

- The objective is to enhance the definition of the TSO and to make it better known
- Participants of the workshop: users, companies, academics
- The structure of the TSO is being updated based on comments received from the participants
- One of the major issue is the dictionary of codes



# The TSO dictionary

- Classification for parameters allowing different values
  - The valid values for filling some of the TSO fields
- Examples of classification to be defined:
  - List of events
  - List of resources (equipment and capabilities)
- One issue is to define the good level of detail
  - otherwise it will be impossible to find an agreement
- The valid value will be represented by codes in the TSO
  - Codes can be translated automatically by tools in the users' own language for the display

# Enhancement of the TSO dictionary

- The first version of the dictionary was built from the NATO codes and updated by nomenclature used in France
- In the frame of the CEN workshop (decision taken during the last ISDEM workshop):
  - A 2 days users workshop was set up the 11th to 12th June 2007
    - to examine the data terminology produced by the CEN ISDEM
    - to agree on list of events and resources at European level
- Next meeting: 9 and 10<sup>th</sup> of October in AFNOR (St Denis)



# Liaisons between the ISDEM WS and other related work

- ISO TC 223: Societal Security lead by Sweden
- Oasis Open (**O**rganization for the **A**dvancement of **S**tructured **I**nformation **S**tandards)