

The CHORIST risk assessment system (MODULE 1)

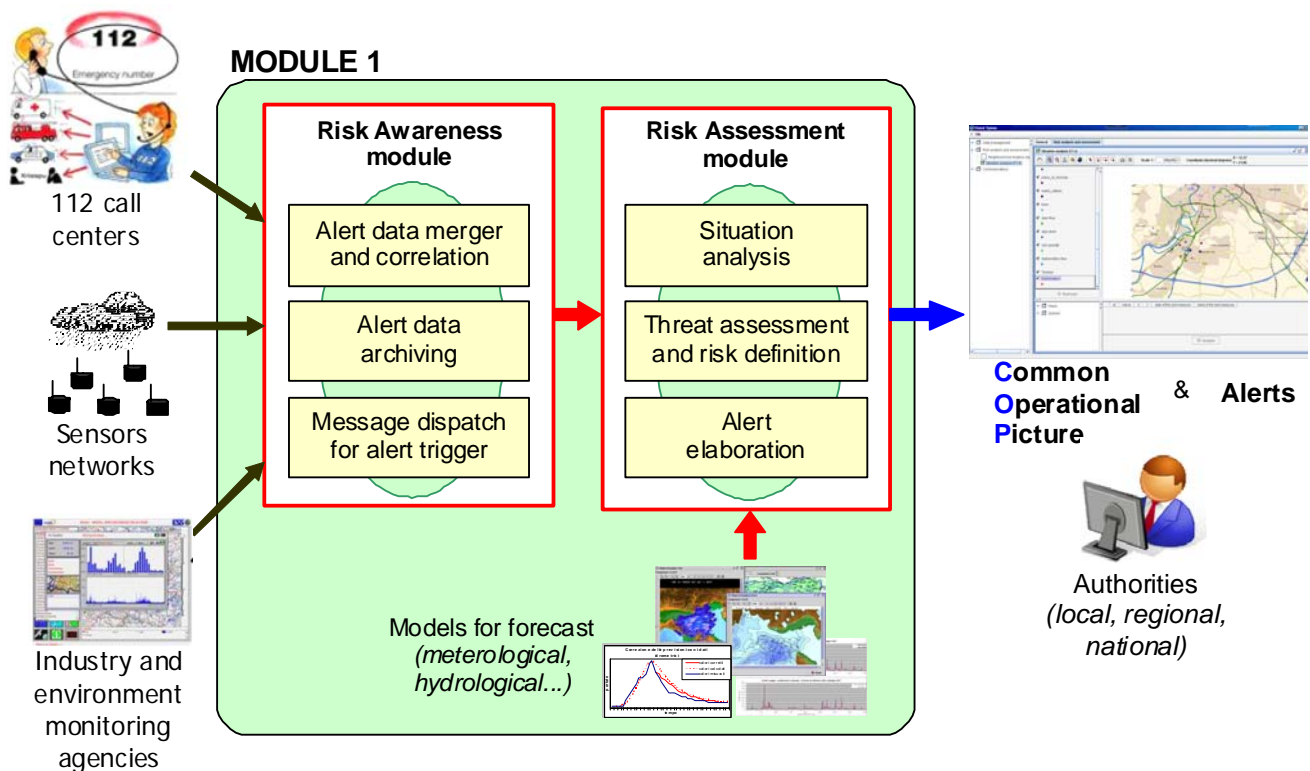


The CHORIST risk assessment system (MODULE 1) is an integrated and scalable decision support tool allowing Authorities to assess natural hazards and industrial accidents.

The MODULE 1 supports decision making activities providing an integrated framework to continuously collect, homogenize and store information coming from several data sources and execute forecasting models that can generate alerts. This set of information is then used by Authorities to create a Common Operational Picture (COP) of the ongoing situation and assess the risk.

Main features

The Authorities use the Common Operational Picture and the Alerts provided by MODULE 1 to make their decisions on how to proceed (rescue teams deployment, warning of the population..). Thus, the more complete the information provided, the more accurate the forecast of the event evolution and of the affected area.



The MODULE 1 Risk Awareness module -modular and configurable- collects information from sources all over Europe -at least-, regardless of borders and nature of the information, including proprietary data. Moreover, the MODULE 1 can embed models to forecast the evolution of the situation, or can import the output of existing legacy forecasting systems (as for meteorology). The MODULE 1 Risk Assessment module then leverages models outputs along with extensive Geographic Information System (GIS) datasets such as satellite imagery, critical infrastructure and population density in order to produce quantitative disasters analysis aimed at supporting decision makers in carrying out their duties.

The MODULE 1 minimises erroneous user input in an emergency by customising (according to existing emergency plans), the automatic execution of some basic analysis.

Finally, the system supports the Authorities, both in their daily operations and during the crisis, suggesting the correct workflow of operations according to the role and responsibility of their own profile.

Typical scenario

1. Heavy rains create a flash flood in a river, which is detected by dedicated sensors: Population and tourists are in danger. The flood then invades a chemical plant downstream into which a transfer of sulphur acid is taking place. This immediately creates a huge cloud of highly toxic gas which quickly drifts over a nearby city.
2. The MODULE 1 automatically and continuously performs an analysis of the affected area loading “static” information (e.g. towns, rivers, road network...) and “dynamic” information (e.g. sensors measures, winds maps, status of the traffic, 112 calls from population...).
3. Authorities can correlate the raw data received to the events and organize a hierarchy of events.
4. Models allow to make forecast of the associated risks.
5. All received pieces of information are unified to create a Common Operational Picture of the ongoing situation to assess the risk and the area that could potentially be affected.
6. Once authorities decide how to proceed, field rescue teams can be deployed where necessary, and the population can then be warned through the CHOR-WARN system .

Advantages and innovations

The MODULE 1 provides the following advantages compared to other existing decision support systems:

- Useable at different levels (Local/Regional/National), depending on the scale of the disaster and according to different roles (e.g. Civil Protection Organisations, police, fire brigades...);
- Generic and versatile platform which can integrate external prediction models (on floods, weather, volcanoes etc.) defined by specialised agencies/experts;
- Correlation of heterogeneous information coming from 112 call centres and from different existing environment monitoring agencies, with no intent to replace them in their own domain of expertise;
- Improved environmental risk awareness, through the deployment of innovative technology;
- Greater inter-operability among Authorities and improved integration of existing legacy systems for an effective exchange of alert information;
- Better contingency planning, resulting in more rapid and effective disaster response management;
- Increased international data standardisation, derived from the ability to identify environmentally vulnerable locations, associated people, and events, and record them uniformly;
- Improved response capability, derived from a system that allows the use of information and the implementation of preventative and contingency plans across boundaries.

Coupling with other CHORIST systems will boost the interest in the MODULE 1:

- The MODULE 2, a communication tool allowing Authorities to deliver early warning messages to the maximum number of citizens in a given area in the minimum of time.
- The MODULE 3, a field rescue teams communication system which can feed the MODULE 1 system with field videos, reports and measurements.

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The 3 CHORIST modules

MODULE 1

MODULE 2

MODULE 3