



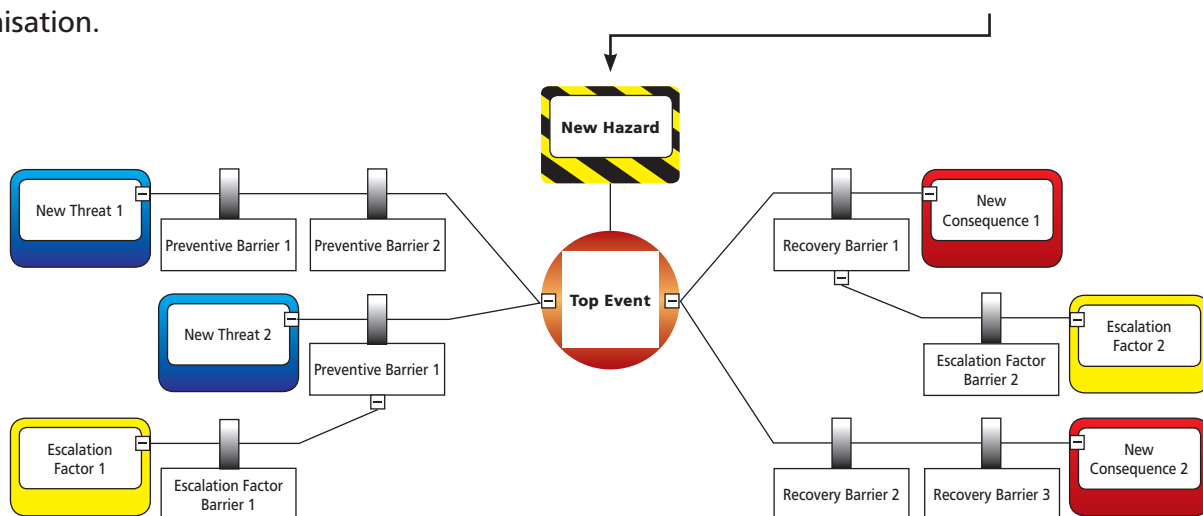
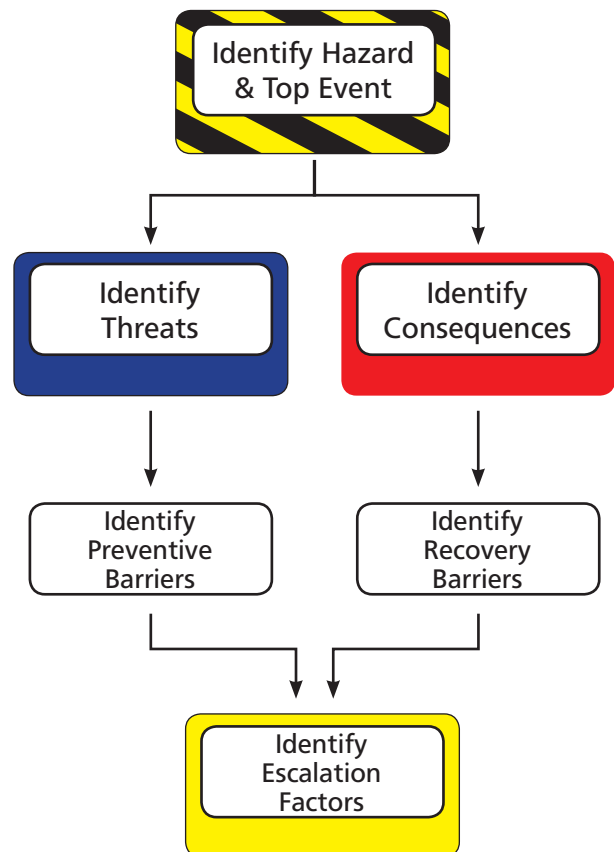
Bow Ties

Visualizing Risks & Hazards

What is a Bow Tie?

A Bow Tie diagram offers visualisation of hazards, threats, barriers and consequences in order to facilitate comprehension of hazard prevention and protection required for safe operations in a facility.

The Bow Tie methodology is rapidly gaining support throughout different sectors of industry, such as oil & gas, chemical, pharmaceutical, cement, food, aviation, maritime etc. It is basically a **risk assessment method** that owes its popularity to the fact that it creates an easy picture to understand and communicate on multiple levels of an organisation.



Possibilities

There are many elements that can be incorporated into a diagram:

- Results of risk assessments performed for the top events or consequences, that will help decide if the existing barriers are sufficient.
- Color codes to distinguish technical, organizational and fundamental barriers.
- Job positions of personnel, responsible for maintaining each barrier. In this way, safety critical tasks are easily identified.
- The procedures related to organizational barriers, providing a quick overview to the safety management system.
- Suggested technical and organizational measures.
- Barrier rating in terms of effectiveness, complexity, probability of performing on demand etc., in order to implement a risk based approach to their maintenance and implementation.
- Safety audit results, so as to be able to monitor barrier performance and their place in the diagram.
- Barrier quantification in the context of a diagrammatic LOPA study.

Bow Tie Sessions

During the sessions, the risk analysis team of **Ergonomia** will cooperate with the responsible personnel of the facility, guide them through the Bow Tie method and

- help identify hazards, threats, consequences and barriers
- help add a failure analysis to the most critical barriers
- suggest additional technical and organizational measures according to relevant standards and best practice.

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Benefits

- ✓ Facilitate all level workforce understanding of hazard management and their role in it
- ✓ Assurance that all major accident hazards are identified, assessed and under control
- ✓ Identification and evaluation of safety critical equipment and tasks
- ✓ Overview of the safety management system and identification of possible revision requirements
- ✓ Quick and easy risk based safety audits
- ✓ Consistency with existing studies (HAZOP, HAZID, LOPA, etc.)

Why Ergonomia

The comparative advantage of **Ergonomia** is the interdisciplinary approach. Skilled engineers of various disciplines have been trained in the use of appropriate software, have conducted numerous risk assessments based on the BowTie method in many different sectors of industry and have managed to help facilities worldwide successfully comply with legal requirements enhancing their overall safety level in the most cost-efficient way.

Partners with  **CGE**
Risk Management Solutions
The leading provider of barrier based risk management solutions

comprehensive approach to
INDUSTRIAL SAFETY  Ergonomia