



# STAKEHOLDERS ANALYSIS IN THE DESIGN OF LNG BUNKERING FACILITIES

TRiTON Research Project

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# RISK MANAGEMENT ACCORDING TO ELOT EN ISO 31000:2018



## Definitions

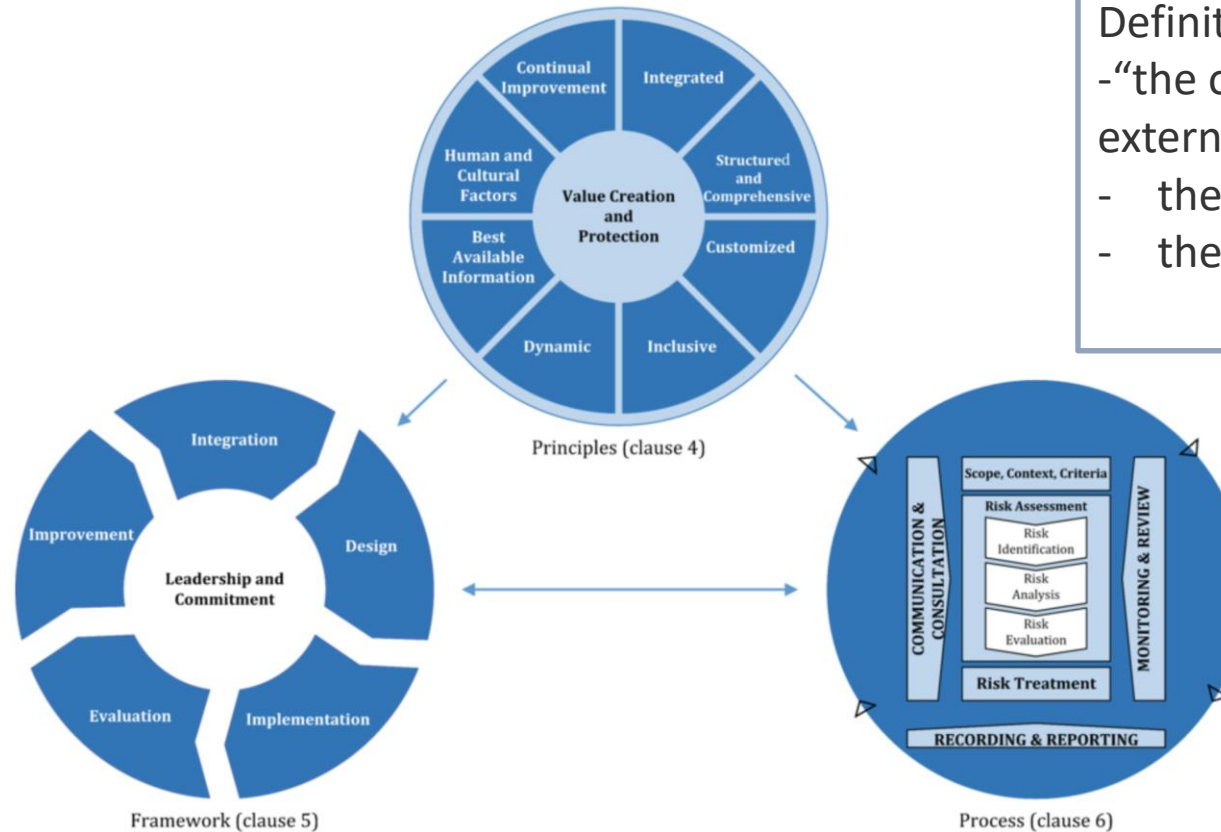
### **risk**

Effect of uncertainty on objectives



- Note 1: An effect is a deviation from the expected. It can be **positive**, **negative** or both, and can address, create or result in **opportunities** and **threats**
- Note 2: Objectives can have different aspects and categories, and can be applied at different levels (strategy, process, function, project)
- Note 3: Risk is usually expressed in terms of risk sources, potential events, their consequences and their likelihood

# RISK MANAGEMENT ACCORDING TO ELOT EN ISO 31000:2018



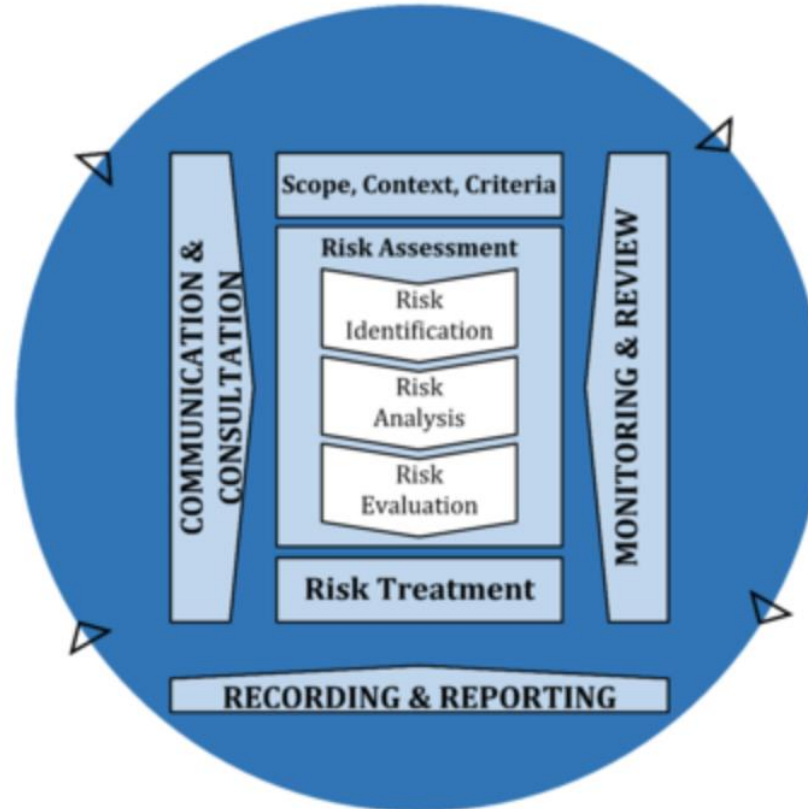
Definition of:

- "the organization" and its the external and internal environment
- the risk management field
- the objectives

ISO 31000:2018 – Principles, Framework and Processes

*Source: ISO 31000 standard*

# RISK MANAGEMENT ACCORDING TO ELOT EN ISO 31000:2018



Process (clause 6)

Communication and consultation with stakeholders has to be performed in all steps of risk management process

ISO 31001:2018 – Processes

*Source: ISO 31000 standard*



# RISK MANAGEMENT FOR LNG FACILITIES: STANDARDS AND TECHNICAL SPECIFICATIONS

Definitions of risk in standards and technical specifications related to LNG facilities

- ELOT EN 1473:2016 Installation and equipment for liquefied natural gas - Design of onshore installations

**risk:** combination of the consequence and the frequency of a specific hazard occurring within a specified period under specified circumstances

- ISO/TS 16901 Guidance on performing risk assessment in the design of onshore LNG installations including the ship/shore interface

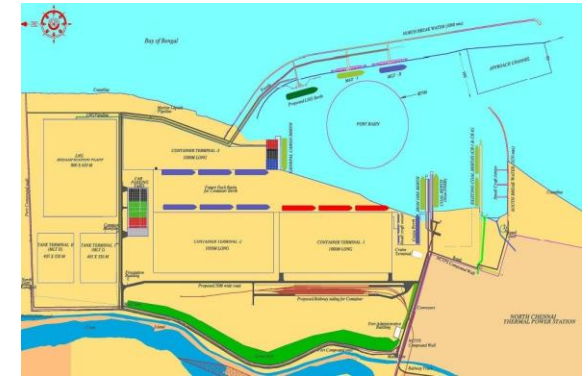
**risk:** combination of the probability of occurrence of harm and the severity of that harm

**harm:** physical injury or damage to the health of people or damage to property or the environment

**hazard:** potential source of harm

**risk management:** coordinated activities to direct and control an organization with regard to risk

**risk management system:** set of elements of an organization's management system concerned with managing risk



# RISK MANAGEMENT FOR LNG FACILITIES: STANDARDS AND TECHNICAL SPECIFICATIONS

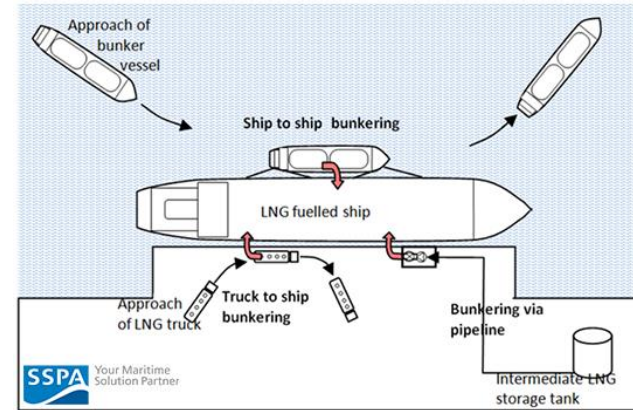
Definitions of risk in standards and technical specifications related to LNG facilities

- ISO/TC 8 ISO 20519 Ships and marine technology — Specification for bunkering of gas fueled ships

**risk assessment:** “...As a result, personnel involved in the transfer shall devise procedures to minimize the risks when a safety zone, or a monitoring and security area, in their provisions are violated”.

- EMSA Guidance on LNG Bunkering Guidance for Port Authorities/Administrations

**Risk** = Hazard **Consequence** (expressed in terms of its negative impact) X **Likelihood** of its occurrence.



# FRAMEWORK, OBJECTIVES AND STAKEHOLDERS

Is the definition of risk as presented in the LNG related standards in line with the one of ISO 31000?

Remark 1: Only threats/ hazards are considered and not opportunities

Remark 2: The stakeholders involvement concerns threats and mainly threats of accidents. Not opportunities or threats are taken into consideration regarding the market, the supply chain or the local community.

Remark 3: In ISO 31000 risk management is based on a determined “organization” for which the external and internal environment have to be clearly identified.  
For an LGN installation, the organization responsible for the management of risk may vary throughout its lifecycle





# TRITON RESEARCH PROJECT

TRiTON main activities include:

A. Establishment of an **integrated risk management** framework to support stakeholders organizations.

B. Development of **methodologies, tools** and **standardized procedures** for the identification, analysis, treatment and monitoring of threats and opportunities in all stages of a port LNG terminal lifecycle:

1. Investment analysis and evaluation;
2. Design and construction project management;
3. Operation;

Special emphasis will be given on Safety and Security issues.

C. Development of relative **National Standard** (national annex) and national guidelines for the effective implementation of EU standards, legislation/ regulation.

D. Case study at Volos port.



# PARTNERSHIP



**ocean finance**

Consultancy company providing strategic and financing consulting services to the maritime and energy industry.



**National  
Technical  
University of  
Athens**

Sector of Industrial Management & OR/ Sch. M.E. Research in risk management, project management, process modeling and management, QM, supply chain management, facilities design, organizational health and safety.



**NATIONAL CENTRE FOR  
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The largest multidisciplinary research center in Greece, with expertise and infrastructure in Nanotechnology, Energy & Environment, Biosciences, Nuclear Science, Informatics and Telecommunications.



**PORT OF VOLOS**

A medium – size port in Central Greece (Thessaly), part of the comprehensive TEN – T network.



**Hellenic Organization for  
Standardization S.A**

Since 2013 it operates as a decentralized autonomous operational unit of the National Quality Infrastructure System (NQIS).  
It is the recognized National Member of the ISO, IEC, CEN etc.  
Exclusive responsibility for the development, implementation, promotion and dissemination of Standardization in Greece.



THANK YOU!

