



Maritime security



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There are

Hazards



Iceberg

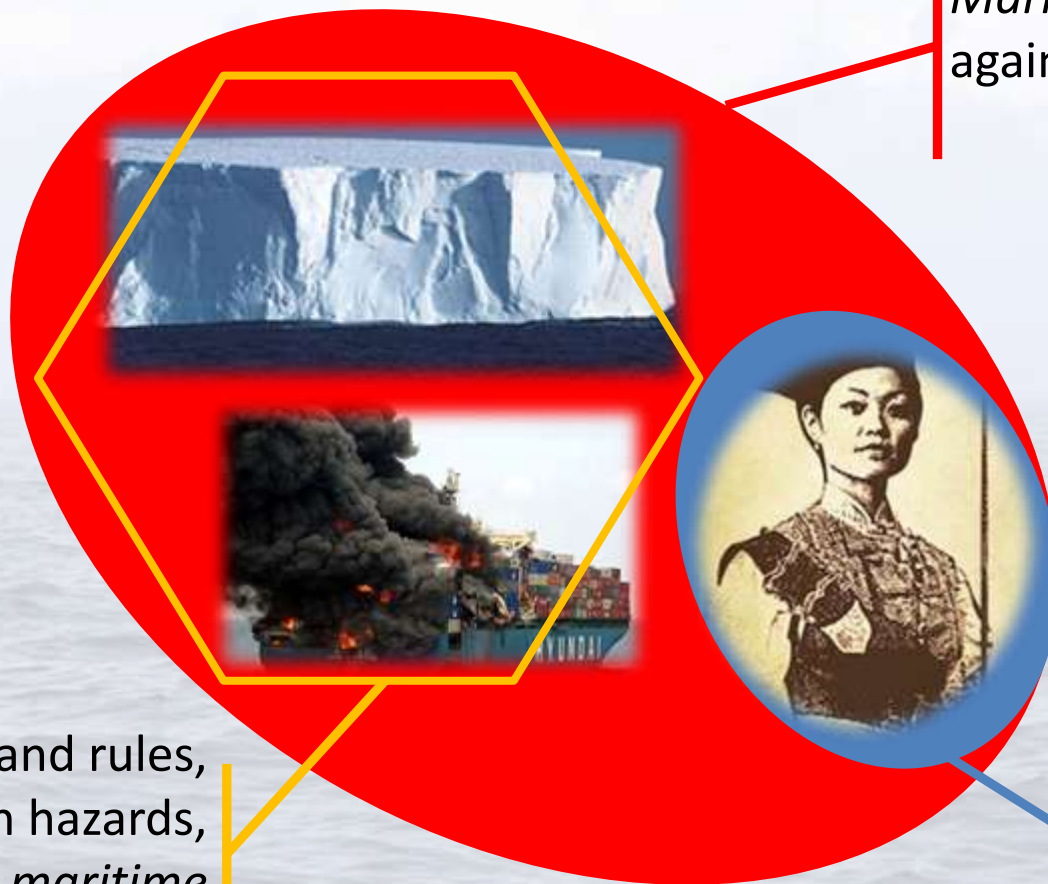
Threats



Ching Shih (1775–1844)

Safety, security and regulations

Maritime safety: protection against hazards and threats



Regulations and rules, dealing with hazards, *traditional maritime safety.*

Maritime security: protection against threats

The practise **An unbalance**

Traditional maritime safety

researched
documented
implemented
proven

Maritime security

young
politicised
(mix of civilian and
military)
secretative

Safety

Safety according to Reason: *"The ability of individuals and organizations to deal with risks and hazards so as to avoid damage or losses yet still achieve their goals".*

Force protection according to NATO: *"measures and means to minimize the vulnerability of personnel, facilities, materiel, operations and activities from threats and hazards in order to preserve freedom of action and operational effectiveness thereby contributing to mission success".*

Safety culture

Three basic areas of safety culture (summarized from Parker):

- (a) formal regulations and processes,
- (b) competence and training, and
- (c) shared risk awareness throughout the organisation.

Security decisions = Risk management

A systematic approach for analysing, evaluating and controlling risk.



The acceptable level of risk depends on the expected gain.

An approach for supporting decisions!



Security \approx low security risk

$$\text{risk} = f(\text{probability and consequence})$$

Probabilities can be based on historical frequencies or simulations.

Consequences, often in terms of cost, fatalities or environmental damage.

Consequences we want to reduce

- Psychological suffering (before)
 - Unknowns (about the operation)
 - Cost for protection
 - Fatalities and injuries
 - Damage to ship, cargo and equipment
 - Limited freedom of action
 - Lost cargo, equipment or ship
 - Psychological suffering (during and after)
 - Ransom payments (for crew, ship or cargo)
- Effects of the phenomenon
- Effects of the incident
- Effects after the incident

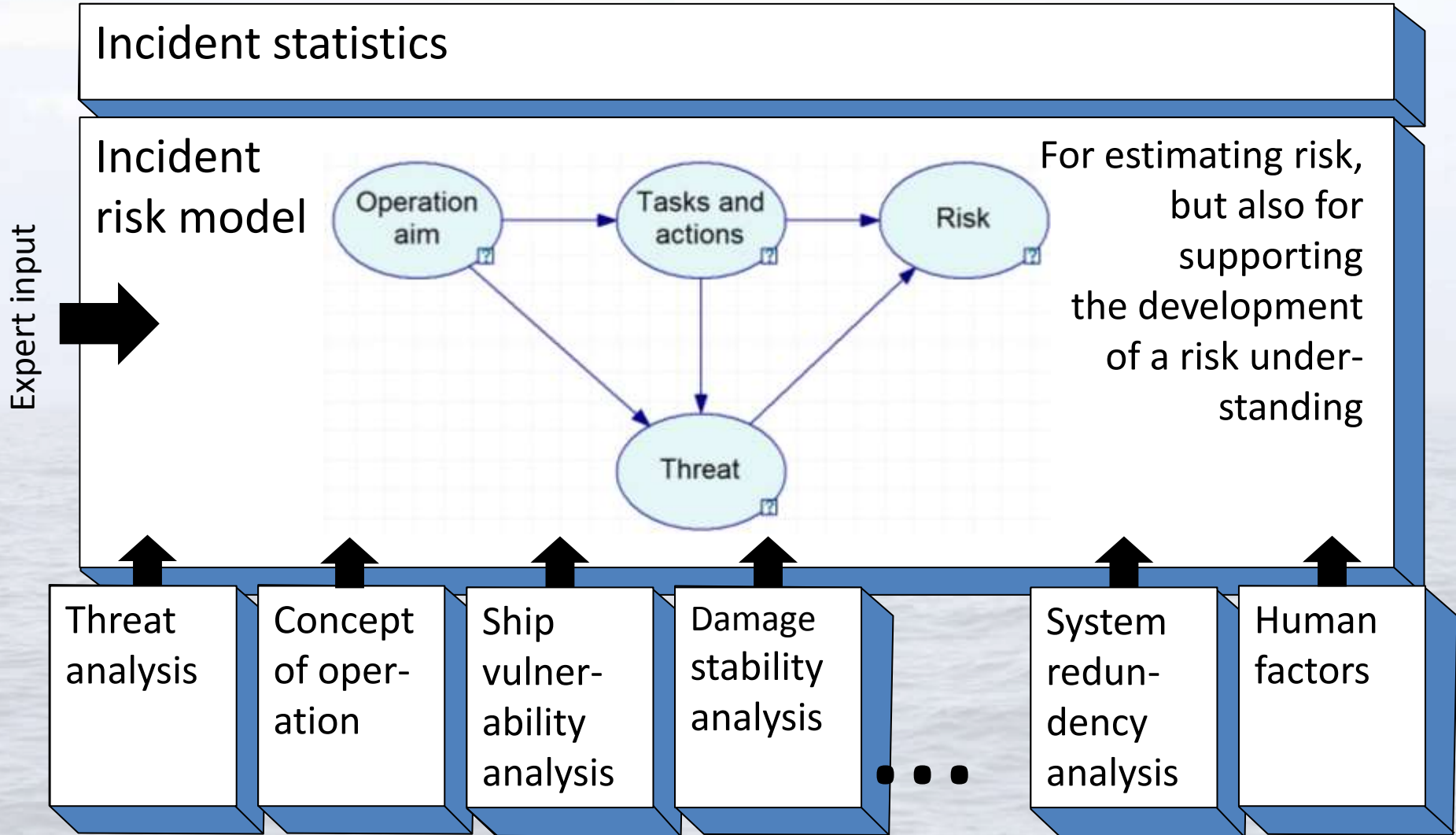
The operational perspective

The purpose of a security analysis is to describe the intended operation.

Formulated so that it supports a development and evolution of a generative safety culture, including an understanding of relevant hazards and threats.

Therefore, the purpose of a risk analysis is greater than merely answering a question or putting a number on the risk.

Levels of understanding and analysis



Statistics don't explain the incidents

- To capture aspects important to the risk understanding (not captured by the data).
 - To capture expected or challenging futures (as a result changes in the security situation).
 - Correlation in data between aspects and risk do not imply causation.
- => Experts are needed despite their limits. We want to be able to answer “*what if*” questions.

Focus on understanding

- To create a shared risk awareness (operational effect).
 - There are not any external explicit security criteria (no external drive for a *bureaucratic* safety culture).
 - People wants to understand (a *generative* approach towards security).
 - Risk controls often depend on actions (a generative approach is needed).
 - To being perceived as well protected is an effective protection.
- => A focus on risk management support (rather than on risk quantification) is needed to create usefulness.

To achieve quality, the analysis must include:

- the relationship between design choices and the probability of incidents,
- the state of the ship/port at the time of incident ,
- complicated incidents with potentially severe consequences,
- qualitative safety culture and human factor aspects, and
- models and data suitable for the ship in question.

A quantitative approach facilitates:

- the structured use of measurable aspects (data) in the analysis which reduces the aspects that must be analysed,
- the definition and analysis of uncertainties,
- critical and objective examination of the analysis
- knowledge transfer to fleet management, on-board tactics and personnel training, and
- an update of the analysis if more data is acquired or more knowledge about the system is gained.

CONCLUSIONS

Most importantly:

The risk can only be correctly assessed with a correct description of the operational aim.

⇒ “Best protection” \neq Lowest risk



Thank you!

