RESILIENCE MODEL

A GUIDE TO STRENGTHEN RISK MANAGEMENT

MARITIME
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RESEARCH

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INTRODUCTION

About us

MARITIME STRATEGY RESEARCH is a research house aiming at developing risk management frameworks and solutions to help organisations gain resilience. Our research focuses on the intersection between enterprise risk management and maritime strategy.

Risk management and maritime strategy

These two disciplines are closely interlinked. Maritime strategy governs naval activities which take place in one of the most demanding environments where risks are ever-present. Incorporating lessons drawn from naval activities into enterprise risk frameworks adds a whole new dimension to risk management.

Purpose of this guide

This guide provides a high level overview of our **RESILIENCE MODEL**. This model is build around 4 phases: **Risk**, **Prevention**, **Disruption**, **Recovery** and is underpinned by a detailed methodology allowing its implementation in organisations in any sector of activity.

"

The risk we take may be great, but we shall be able to weigh it accurately against the value of the end, and we shall take it with our eyes open and of set purpose.

Sir Julian Corbett
Naval historian and strategist

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RESILIENCE MODEL

Guiding principles

Gaining resilience is an intentional process which combines the ability to anticipate risks, prevent emergencies, react to crises and bounce back after any disruption.

An effective way to avert disruption is to anticipate issues by implementing multiple layers of prevention. However, certain risks are not preventable and even the strongest prevention is not infallible. Crises will occur and organisations must be prepared to cope and recover from these challenges.

The 4 phases of the resilience model

Our **RESILIENCE MODEL** is based on 4 phases, further broken down into 11 steps that aim at unfolding the power of resilience. The 4 phases are:

RISKS: identify vulnerabilities and potential threats.

PREVENTION: implement multiple layers of prevention to reduce likelihood, frequency and potential impact of disruptions.

DISRUPTION: act immediately when an emergency / crisis is in motion. React decisively to take control of the situation and pre-empt further escalation.

RECOVERY: handle the consequences and aftermath of a disruption.

Resilience model

RISKS

1 Risk assessments

2 Risk appetite

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3 Culture | Leadership

4 Training | Simulations

5 Protocols | Guard rails

6 Inspections| Indicators

DISRUPTION

7 Early warning signals

8 Emergency reaction

9 Crisis management

RECOVERY

10 Recovery plan

11 Insurance

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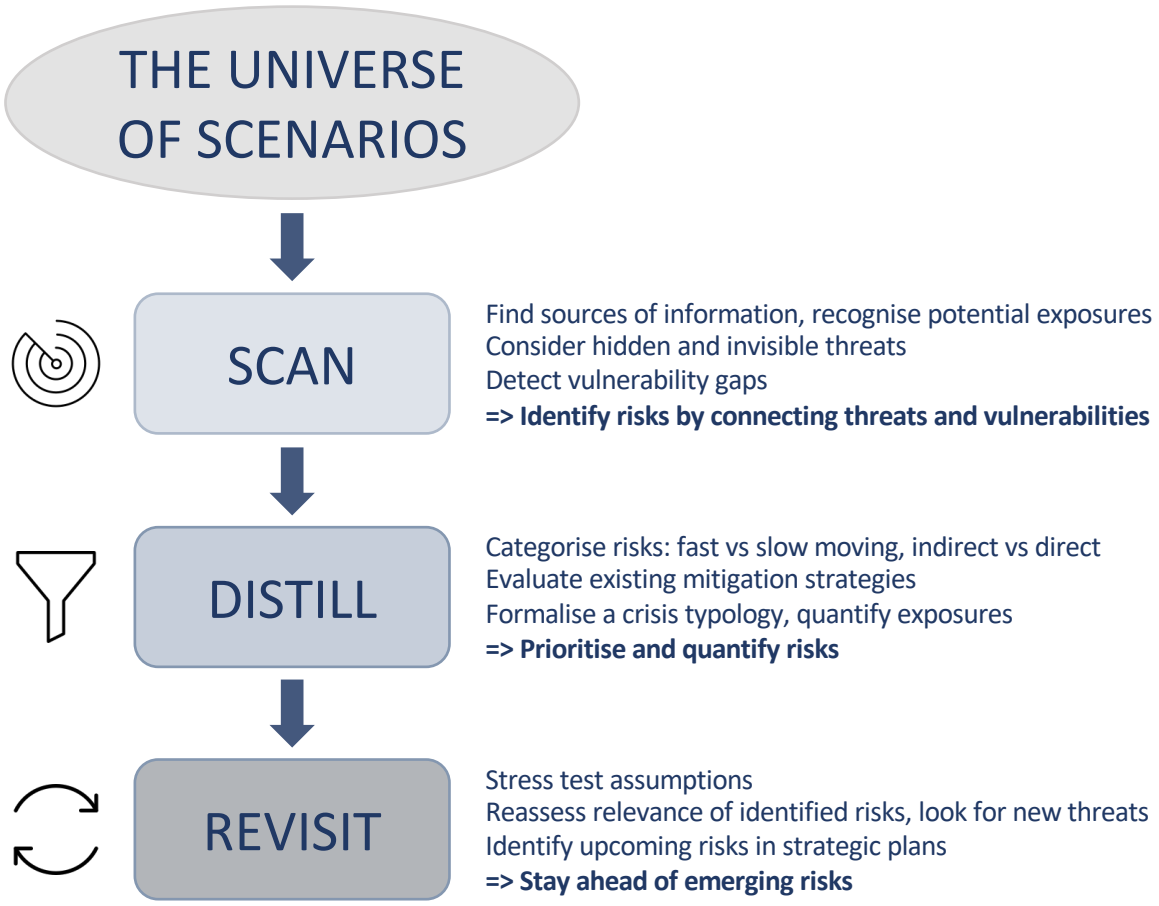
RISKS

1 RISK ASSESSMENTS

Are the Achilles' heels of the organisation identified?

Assessing risks that can prevent an organisation from achieving its objectives is a continuous process that addresses the ever evolving universe of scenarios. This is not a one-off exercise and requires constant scanning of internal and external threats.

Achieving sufficient domain awareness is a pre-requisite to implement the most adequate mitigation measures to prevent disruptions.



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A MARITIME ILLUSTRATION

Continuously assessing external risks

THE PHOTOGRAPH

A non-identified ship caught in ice, probably in Alaska in the early XX century. Sailing ships were repeatedly caught unwillingly in ice when sufficient precautions were not taken.

THE SIGNIFICANCE

Navigating in northern waters required special preparedness and continuous risk assessments on the alterations of a rapidly changing environment.

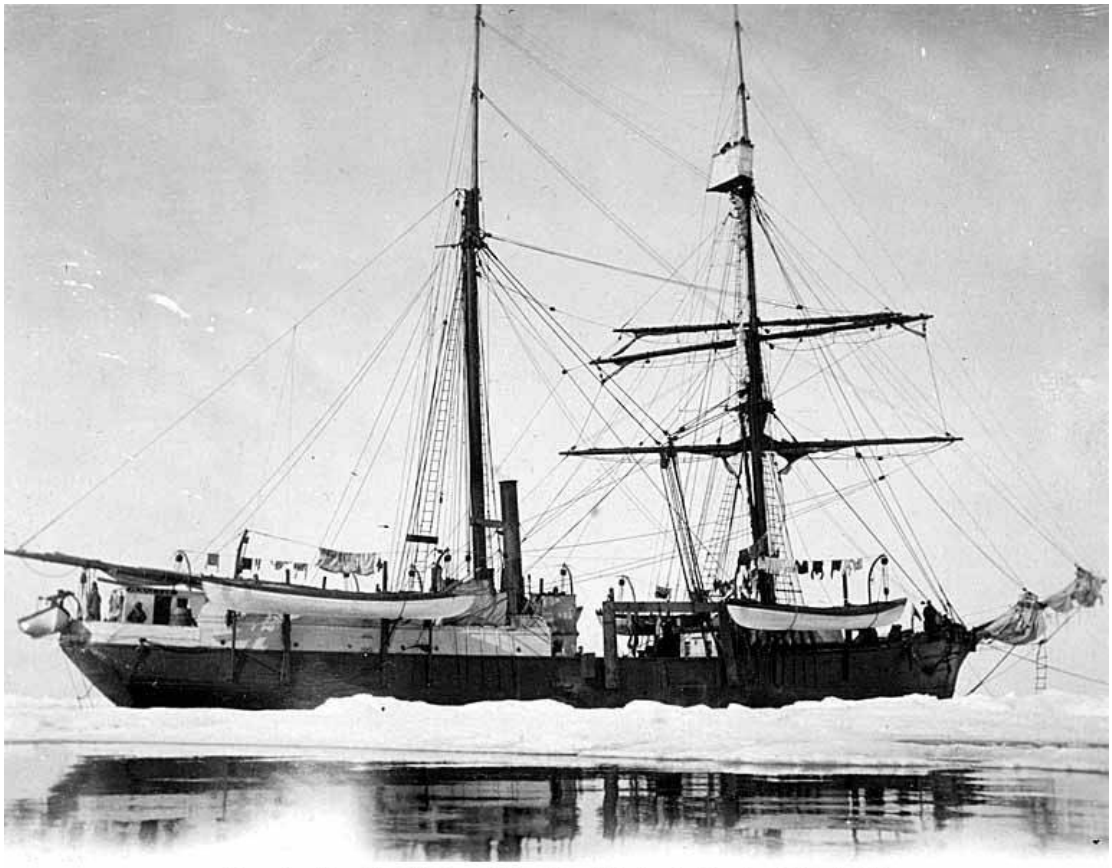

Photo by A. C. Warner. University of Washington: Special collections, PH Coll 273.A305.

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RISKS

2 RISK APPETITE

How far is the organisation prepared to go?

Risk appetite is “the types and amount of risk, on a broad level, an organisation is willing to accept in pursuit of value” (COSO definition). Risk appetite is dictated by guiding principles and is quantified by risk thresholds.

To ensure that an organisation’s guiding principles are adhered to, a set of risk thresholds quantifying the risk appetite have to be implemented. All these elements have to be aligned to ensure a consistent deployment of the guiding principles.

GUIDING PRINCIPLES
Strategy, mission, values, ethics,
Tone from the top, culture

RISK APPETITE

ALIGNMENT ZONE: An organisation’s risk appetite has to be aligned with the thresholds that frame its ability to govern risk taking

RISK THRESHOLDS

QUANTIFICATION
Levels of authority, approvals, limits, policies & procedures, budgets

Step 5: ensure risk appetite aligns with guiding principles

Step 4: critically review risk thresholds and align with risk appetite

Step 3: articulate risk appetite levels for key areas

Step 2: set additional risk thresholds if missing in key areas

Step 1: map existing risk threshold

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A MARITIME ILLUSTRATION

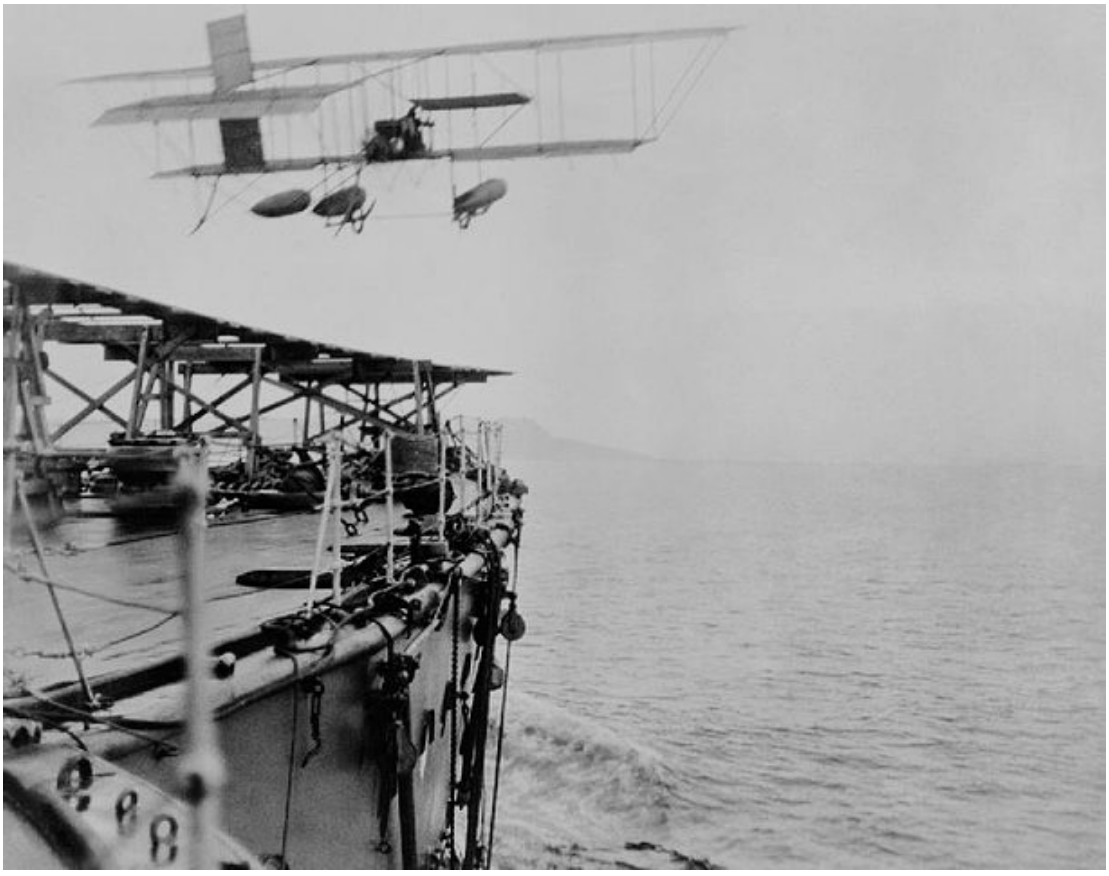
Setting risk appetite for new ventures

THE PHOTOGRAPH

In May 1909, Commander Charles Samson took-off from the British battleship HMS *Hibernia* onboard a biplane. He became the first pilot to fly from the deck of a ship underway.

THE SIGNIFICANCE

In the early XX century, Commander Samson and other pioneers paved the way for the development of naval aviation. These trials, however, were not without risk. They were motivated by a mission and had to fall within the Royal Navy's risk appetite.



Imperial War Museum. Catalogue # Q 71041.

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PREVENTION

3 CULTURE | LEADERSHIP

Is everyone convinced of the power of resilience?

A culture of resilience is an integral part of an organisation's strength. This culture has to be instilled by the leadership from the top and cascaded to the entire organisation.

Creating resilience is not a bureaucratic task in the hands of a handful of individuals. Each member of an organisation handles a certain level of risks within her/his scope of activity. As such, everyone has the duty to contribute to the organisation's resilience.

RISK CULTURE

LEADERSHIP

Intentional leadership in building-up resilience
'Zero tolerance' for non-safety and incompliance with rules
Duty of care as a component of decision making
=> Resilience tone from the top

ALL CUSTODIANS

Every person in the organisation is a risk manager
Sense of responsibility beyond immediate tasks
People, stakeholders and assets are guarded from exposure
=> Resilience is everyone's mission

SPIRIT OF INITIATIVE

Appropriate level of responsibility allocated to each echelon
Empowered teams to identify and close resilience gaps
Confidence to report incidents and propose improvements
=> Resilience requires readiness to take action

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A MARITIME ILLUSTRATION

Resilience is everyone’s mission

THE PHOTOGRAPH

During World War II, the British ocean liner *Oronsay* was used to transport troops, evacuate personnel and carry supplies. Men in this photo were not crew members but infantry troops on their way to Norway in 1940.

THE SIGNIFICANCE

Resilience is in everyone’s hands. Everyone onboard, including these infantry troops, was wearing a life jacket during a boat drill, contributing to maintaining a culture of resilience during the journey.

Photo by G. Keating. Imperial War Museum. Catalogue # N 40.

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PREVENTION

4 TRAINING | SIMULATIONS

Is there a resilience learning strategy in the organisation?

Resilience reflexes tend to be perishable skills that need to be trained, refreshed, upgraded and tested periodically.

To deliver sustainable effects, resilience training, exercises and simulations have to be part of an organised routine. They must be part of a program that ensures consistency, regularity and alignment with the organisation's culture.

TRAINING

INDUCTIONS

Share the culture of resilience
Set the tone, set minimum standards
Cover basic safety & security issues

REFRESHERS

Deliver safety & security awareness courses
Specific programs for first aiders, care takers
Rotate focus areas

SIMULATIONS

LIVE DRILLS

Prepare realistic exercises
Do emergency drills: fire, evacuations
Involve all personnel

TABLE TOP EXERCISES

Simulate crises to stress test response plans
Improve the plans based on the outcome
Involve third party partners

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A MARITIME ILLUSTRATION

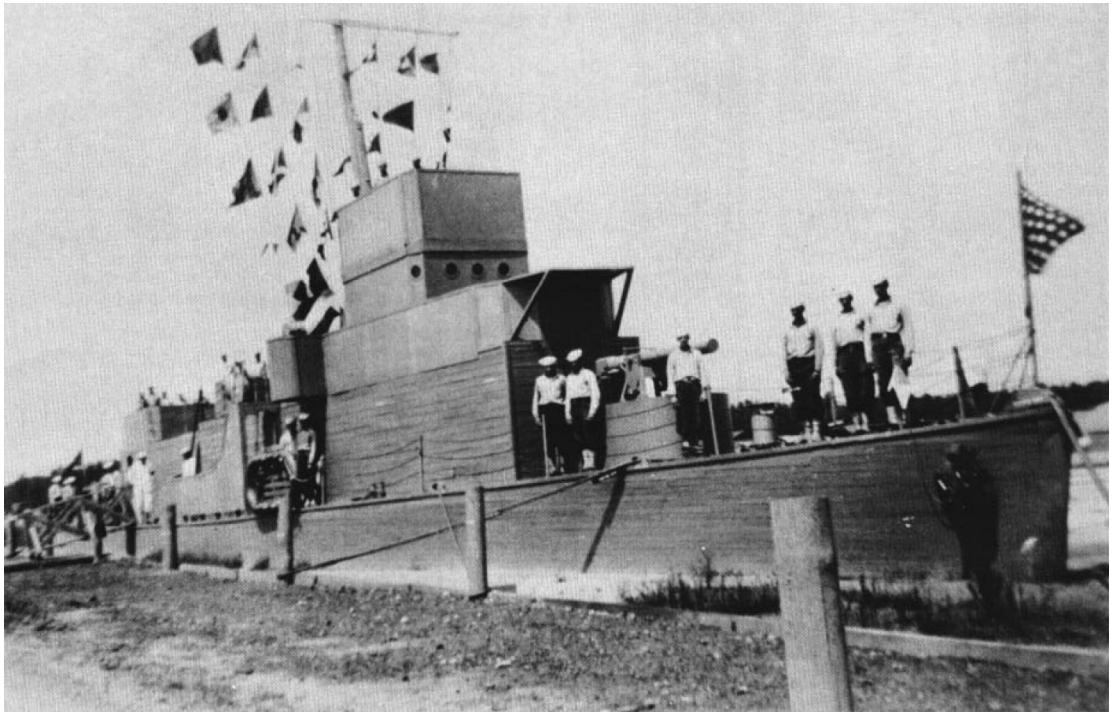
Training in a safe environment but in ‘realistic’ conditions

THE PHOTOGRAPH

During World War II, the U.S. Navy built a wooden mock-up destroyer to provide induction training to future crews. The ship was called *Miss Never Sail*.

THE SIGNIFICANCE

Receiving initial training in a safe environment that replicates real conditions to a feasible extent, was an important first step for recruits to gain confidence and master very basic skills.



US Navy All Hands magazine, September 1975, p.62.

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PREVENTION

5 PROTOCOLS | GUARD RAILS

Are the ‘rules of engagement’ understood by everyone?

Protocols are documents that protect an organisation by clarifying the ‘rules of engagement.’ Protocols focusing on resilience help to prevent disruptions and also outline how to react in case of crisis. Such protocols are supplemented by guard rails that set the boundaries for an organisation to operate.

A *Risk Handbook* siting on top of these formalised procedures and parameters, provides general guidance on resilience and spells out the overarching risk principles to be followed by the organisation based on its risk appetite.

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A MARITIME ILLUSTRATION

Designing and respecting safety standards

THE PHOTOGRAPH

A sailor onboard the French sloop *Bellatrix* around 1931 during a stopover in Sydney. During stays in port, crews would usually work on the maintenance and cleaning of their ship.

THE SIGNIFICANCE

As a counter-example, security protocols were not always adequate in the 1930s. Lack of safety standards and protective personal equipment for crew members were common onboard ships.

Photo by S. J. Hood, 1930-32. Australian Maritime Museum. Catalogue # 00034671

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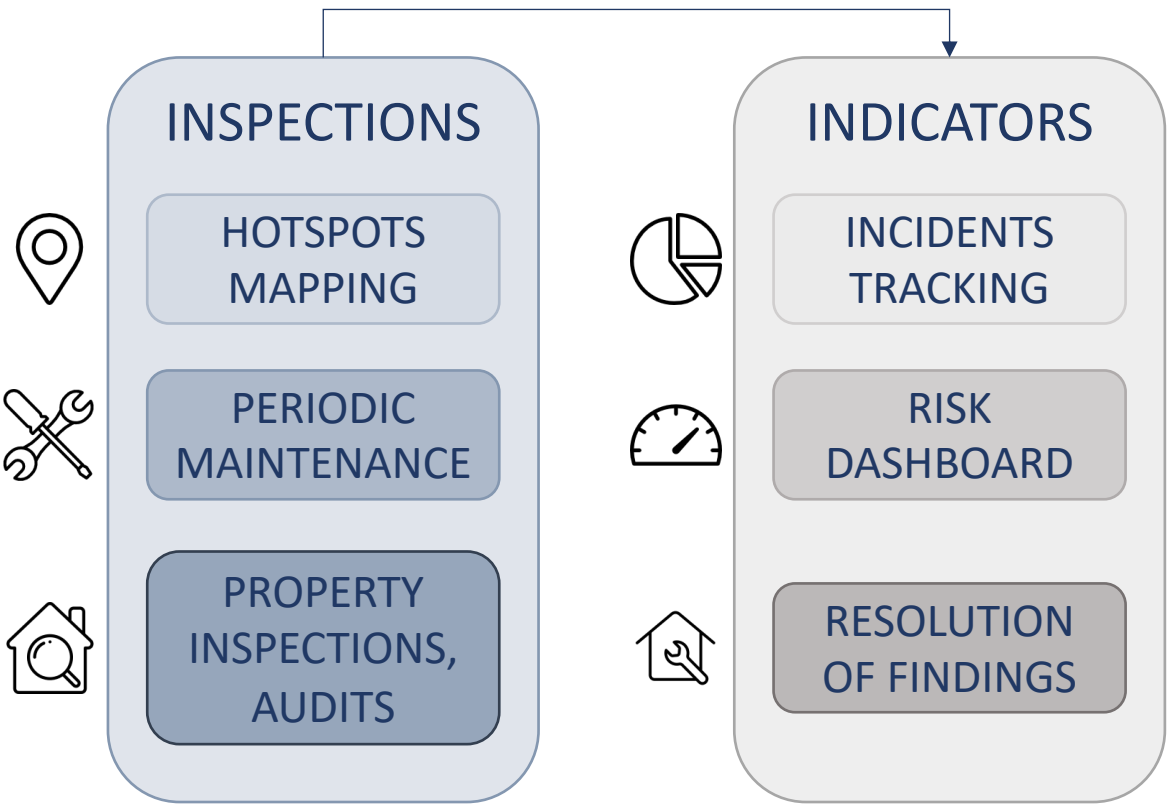
PREVENTION

6 INSPECTIONS| INDICATORS

Are all vulnerabilities identified?

Inspections and indicators provide an opportunity to identify faulty assets, anticipate issues and rectify deficiencies.

Leveraging internal and external expertise to conduct inspections allows to identify hot spots, map incidents and uncover vulnerabilities. Key indicators allow to rectify identified issues, follow the progress of action plans, measure residual exposures, reprioritise initiatives, benchmark different areas and set targets for improvement.



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A MARITIME ILLUSTRATION

Conducting inspections by qualified experts

THE PHOTOGRAPH

A naval officer conducts an open breech inspection on a 14-inch Mark 4 gun mounted on rails in 1919.

THE SIGNIFICANCE

Routine check programs to inspect materiel allowed to ensure the safety and correct functioning of these assets.

Photo by Harris & Ewing. Library of Congress. Catalogue # hec -12661.

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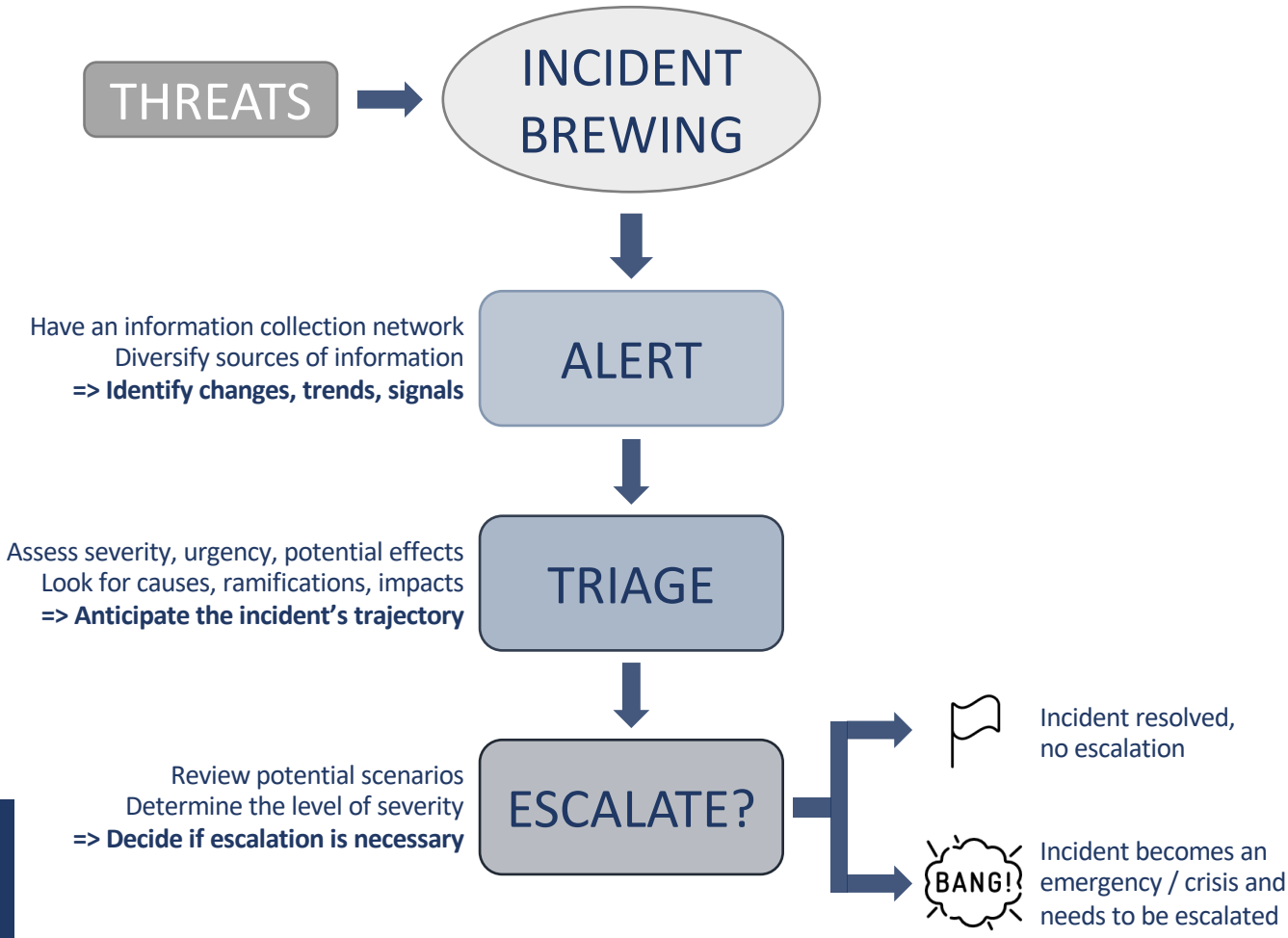
DISRUPTION

7 EARLY WARNING SIGNALS

Are the existing alert channels adequate?

A critical step of the resilience process is to timely recognise threats and anticipate when an incident can escalate into a crisis. A process to collect early alerts and monitor potential issues is key to identify emerging risks and lower level incidents.

An effective collection of early warning signals allows getting ahead of potential disruptions and address them promptly.



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A MARITIME ILLUSTRATION

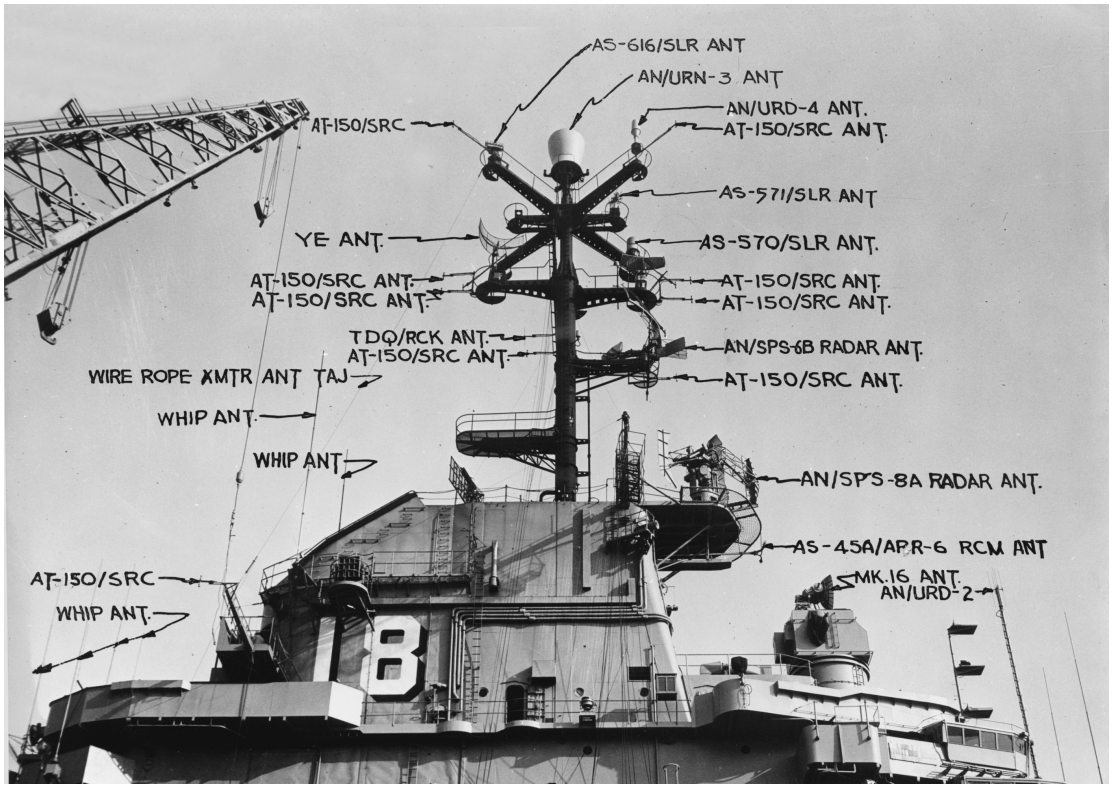
Setting networks to collect early warning signals

THE PHOTOGRAPH

After its modernisation in 1955 at the San Francisco Naval Shipyard, the U.S. Navy aircraft carrier USS *Wasp* displayed a state-of-the-art radar system.

THE SIGNIFICANCE

Radars provide early warning signals to detect potential threats. These sensors, supplemented by other means such as air patrols, sonars and look-out duties, constitute an integrated forward looking system to uncover threats.



U.S. Navy Bureau of Ships. National Archives and Records Administration. Catalogue # 7578287.

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DISRUPTION

8 EMERGENCY REACTION

Is the emergency response team ready to react?

As soon as an emergency is declared, the response has to be set in motion. Speed of reaction and a 'people first' approach are key factors to contain the emergency and ensure everyone's safety.

Due to the unpredictable nature of emergencies, plans prepared in advance will not cover all scenarios and a certain level of bespoke customisation will be necessary to overcome the situation when an emergency occurs.

EMERGENCY	EMERGENCY REACTION
BANG!	RESCUE: Do not panic, stay calm, react swiftly Initial response focused on people's safety first Disseminate warnings to people at risk Involve the authorities if necessary **=> People first, speed of reaction**
	CONTAIN: Prevent further spread of the emergency Do not place anyone in harm's way Protect people, assets, reputation Monitor potential collateral effects **=> Understand potential ramifications**
	CRISIS MANAGEMENT Escalate to crisis if the emergency has extended effects

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A MARITIME ILLUSTRATION

Being prepared to handle even the worst emergencies

THE PHOTOGRAPH

On December 10, 1941, the British battleship HMS *Prince of Wales* was sunk by Japanese aircrafts in the South China Sea. During this emergency, the crew was ordered to abandon ship and board the destroyer HMS *Express*.

THE SIGNIFICANCE

This raid marked the first time in history of a warship sunk by aerial attack while underway at sea. The unexpected effectiveness of this attack created a sudden emergency that required immediate and decisive action to save the crew.

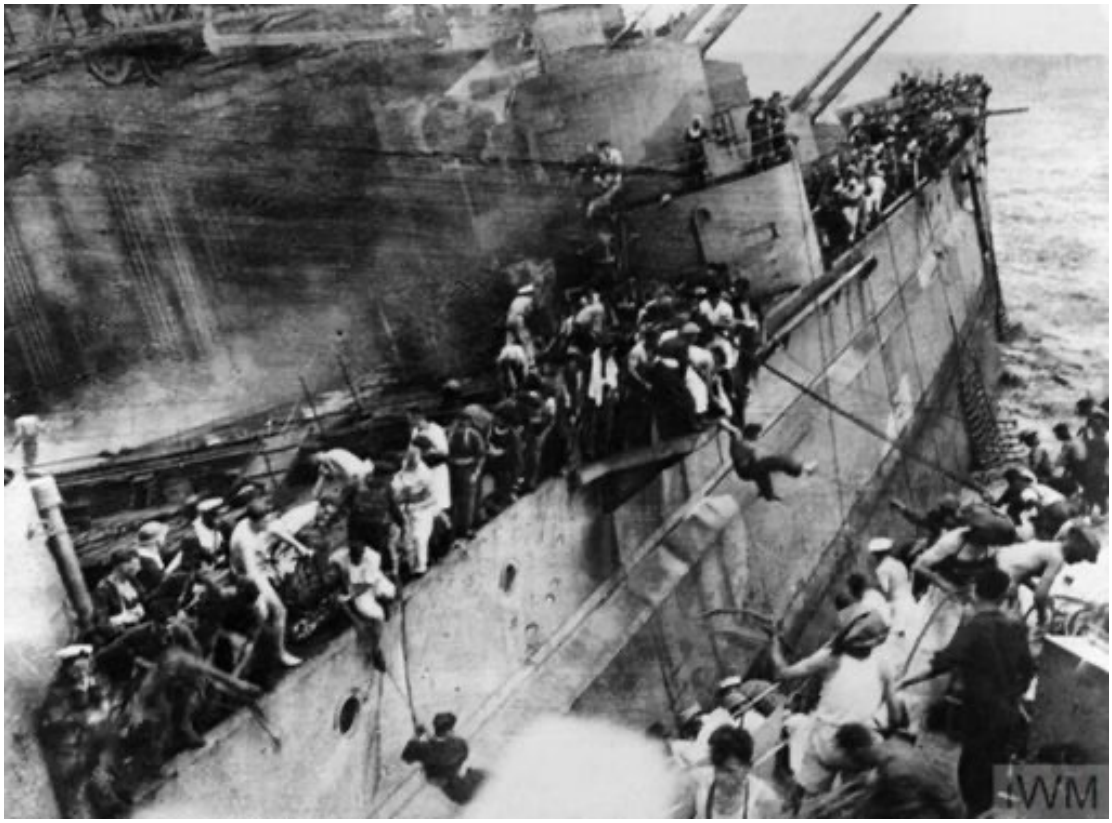

Photo by P. Satow. Imperial War Museum. Catalogue # HU 2675.

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BANG!

DISRUPTION

9 CRISIS MANAGEMENT

Is the organisation ready to overcome a crisis?

A crisis opens a period of vulnerability for an organisation. Decisions have to be made quickly in an often fast evolving environment and with limited information.

The crisis team has to assess the situation, take action, anticipate the crisis' trajectory, define the best way forward and continuously reassess the situation. Crisis management is, therefore, an iterative endeavour requiring continuous adjustment.

EMERGENCY REACTION

CRISIS MANAGEMENT

ASSESS

Assess damages and potential implications
Define the crisis response objectives
Assemble a crisis team, define a plan
=> Objectivity, broadness, anticipation

ACT

Assign actions and deliver tangible results
Revisit assumptions and adjust the plan
Track results and report to management
=> Decisiveness, agility, simplicity, composure

ENGAGE

Engage with internal and external stakeholders
Create feedback loops to gain insights
Work to be recognised as the source of truth
=> Clarity, regularity, visibility, empathy

Reassess assumptions as the crisis evolves

RECOVERY PLAN

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A MARITIME ILLUSTRATION

Adjusting the plan as the crisis unfolds

THE PHOTOGRAPH

The Battle of the Atlantic during World War II was a major challenge for the Allies as they struggle to keep sea lanes of communication open. A map in the Operations Room allowed to track convoys to maintain situational awareness and define the best way forward.

THE SIGNIFICANCE

The crisis team needs to constantly assess the situation, identify potential implications and anticipate the crisis trajectory before tacking decisive actions.

Photo by H Tomlin. Imperial War Museum. Catalogue # A 4544.

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SOS **RECOVERY**

10 RECOVERY PLAN

How to emerge stronger from a crisis?

Recovery plans can take very different forms depending on the type of crisis. Not all crises require extensive reconstruction or replacement of assets. However, all crises create opportunities to strengthen an organisation.

A crisis and its subsequent recovery phase allow to update risks assessments, re-evaluate the risk appetite, revisit decision making processes and enhance crisis response plans. Once a crisis is over, learnings have to be captured and used to prevent reoccurrence and further strengthen the organisation's resilience.

CRISIS MANAGEMENT → RECOVERY PLAN

PREPARE

Gather the recovery team
Identify areas that need recovery
Find features to be improved
=> Build a plan that brings improvements

LEARN

Conduct a crisis post-mortem
Find needs for training and for new capabilities
Identify areas where reoccurrence is possible
=> Draw lessons from the crisis, update plans

UPGRADE

Review risk appetite
Integrate additional prevention if needed
Strengthen the ability to withstand disruptions
=> Introduce improvements to gain resilience

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A MARITIME ILLUSTRATION

Recovering in the aftermath of a crisis

THE PHOTOGRAPH

The British battleship HMS *Warspite* was hit by an enemy 12-inch shell during the Battle of Jutland on May 31, 1916. The explosion destroyed part of the hull plating at main deck level. This photograph was taken after the ship entered the dry dock at Rosyth for repair.

THE SIGNIFICANCE

Ship repair facilities in Britain were prepared to receive damaged vessels and bring them back to service as soon as possible. Recovery of HMS *Warspite* took only two months and by end of July 1916 the ship returned to active duty.

Photo by F. Curzon. National Maritime Museum, Greenwich. Catalogue # N16494

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SOS **RECOVERY**

11 INSURANCE

Are there any gaps in insurance coverage?

Insurance policies provide protection against a wide range of insurable perils and represent the last line of defence in the resilient model. However, insurance policies are not infallible: not all risk are transferable, there are maximum monetary limits and policy exclusions. Working in concert with insurance partners is crucial to optimise coverage based on the organisation's exposures.

Although a strong prevention helps minimizing the number, frequency and magnitude of insurance claims, these will most certainly arise at some point. A strong process has to be defined to handle these claims effectively.

PARTNERS

Build a network of reliable partners (insurers, brokers, adjusters)
Maintain trustworthy relationships with these partners
Find a common vision with them despite divergent interests
=> Build trust and transparency

COVERAGE

Design an insurance program 'fit for purpose'
Yearly revisit limits and breath of coverage
Align coverage with risk assessments for insurable risks
=> Strike the right balance between costs and coverage

CLAIMS

Build a robust process to notify and track claims
Support the investigation of claims
Set an ad-hoc process for large claims, engage experts
=> Have a well-designed claims process

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A MARITIME ILLUSTRATION

Insuring, mutualising and mitigating risks

THE PHOTOGRAPH

A World War II convoy of merchant ships gathering in the Bedford Basin, Nova Scotia (Halifax) on April 1, 1943 before crossing the Atlantic.

THE SIGNIFICANCE

Several countries involved in World War II introduced compensation laws creating war damage insurance programs for merchant ships. Along with convoy arrangements, these measures allowed to better protect shipping.

Department of National Defence. Library and Archives Canada. Catalogue # MIKAN 3194308.

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MARITIME STRATEGY FOSTERS RESILIENCE

Maritime strategy

The **RESILIENCE MODEL** is inspired and illustrated by constituents of maritime strategy. For example:

Domain and situational awareness, intelligence sources →

Calculated risk taking, naval doctrine, clarity at the top →

Maritime tradition, command & control, theatre command →

Force generation and sustainment, exercises, war games →

Rules of engagement, naval instructions, mission planning →

Mission capability, systems operability, readiness, force ratios →

Reconnaissance, presence, surveillance, escalation ladder →

Fast reaction, maneuver, force protection, damage control →

Deconfliction, systems survivability, command & control →

Force reconstitution, reconfiguration, upgrade →

War damage insurance, risks transfer, mutualization →

Resilience model

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CONCLUSION

Closing thoughts

This **RESILIENCE MODEL** provides risk managers with a framework to further strengthen enterprise risk management. The model is underpinned by a detailed methodology addressing individually each of its 11 steps.

Although prevention remains an effective way to avert disruption, not all risks are preventable. As such, prevention alone is not sufficient and the 4 phases and 11 steps of the model form an integrated system to be adopted as a whole.

> *"*
>
> *Now, gentlemen, let us do something today which the world may talk of hereafter.*
>
> Lord Cuthbert Collingwood
> *Vice-Admiral*

Resilience model

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ABOUT THE AUTHOR

André Fournier is a risk practitioner and naval historian with more than 25 years of professional experience. He is the founder of MARITIME STRATEGY RESEARCH.

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