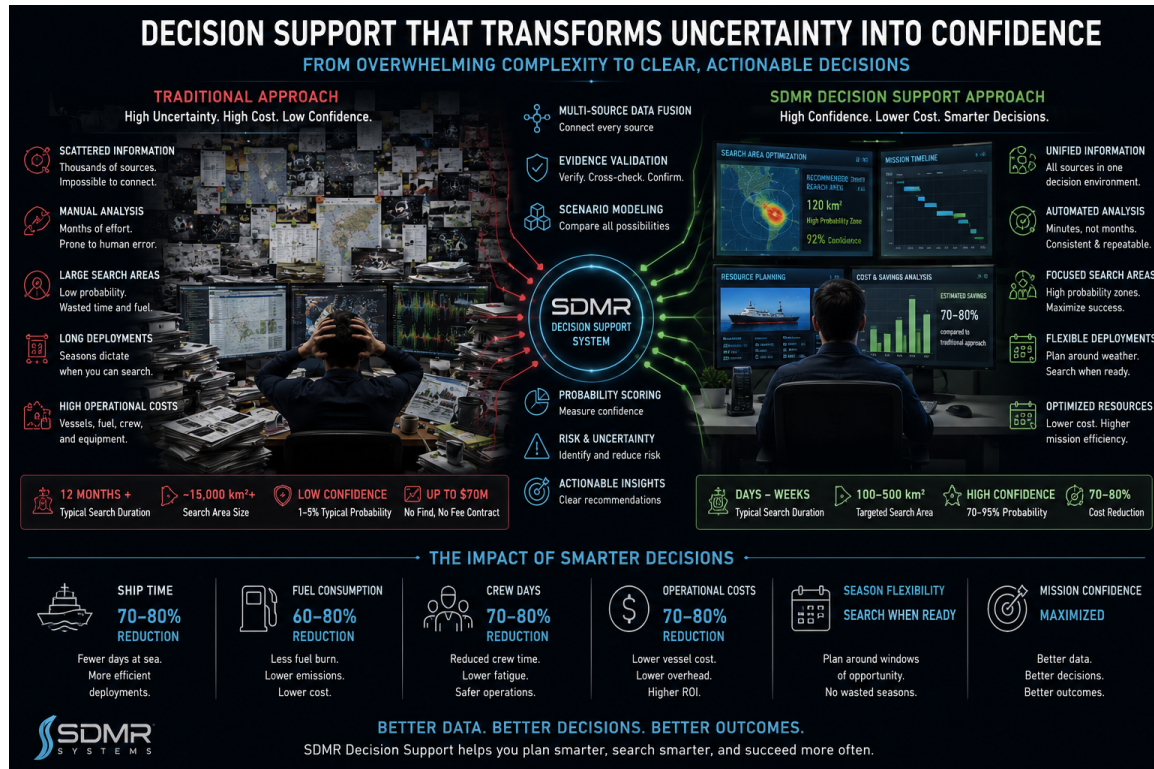


## SDMR SYSTEMS



## Decision Support Executive Summary

### Better Decisions Begin with Better Evidence.

The search for Malaysia Airlines Flight MH370 demonstrates one of the greatest challenges in modern investigations. The difficulty is not simply locating an aircraft—it is making the right decisions before the search begins. Every deployment depends on incomplete information, changing environmental conditions, limited weather windows, vessel availability, and significant operational commitments.

### The Current Search Model

In deep-ocean investigations, time is governed as much by nature as by technology. Seasonal weather, sea state, and logistics determine when search vessels can safely operate. Every delay, route adjustment, or expansion of the search area increases operational complexity, while every deployment represents a major investment of personnel, equipment, and planning.

Traditional search strategies often require investigators to examine large areas because uncertainty remains high. As new information becomes available, search plans evolve and resources may be redirected. This is a normal part of complex investigations, but it can extend timelines and increase the scale of operations.

### The SDMR SYSTEMS Approach

SDMR SYSTEMS is designed to improve decision-making before deployment. By integrating independent evidence into a single operational picture, investigators can compare competing scenarios, measure confidence, and prioritize search opportunities before committing people, vessels, or aircraft.

### Decision Support Principles

- **Confidence Before Commitment:** Begin every deployment with measurable confidence based on multiple independent evidence sources.
- **Strategic Search Planning:** Prioritize the highest-probability search areas first and work methodically through alternatives.
- **Operational Efficiency:** Support focused missions, improve planning, and adapt quickly as new evidence becomes available.

### Download Resources

For the best experience, download these resources to your computer or mobile device. SDMR SYSTEMS uses widely available tools such as Microsoft Word, PDF, Google Earth (KML), SkyVector references, videos, and interactive documents so you can review information offline, retain your own copy, and return to it whenever needed.

## Decision Support – The Reality Behind Every Deployment Decision

### The Operational Reality

Before a search vessel leaves port, hundreds of operational decisions have already been made. Mission planners must balance budgets, vessel availability, crew scheduling, fuel consumption, weather forecasts, transit time, equipment readiness, safety requirements, and search priorities. Every one of these factors affects every other factor. A change in weather may delay deployment. A longer transit may increase crew time. A faster transit may consume more fuel while reducing overall mission duration. The challenge is not simply finding the target—it is managing an interconnected system of decisions before the search even begins.

## The Cost of Complexity

In large-scale ocean investigations, uncertainty drives operational complexity. As confidence decreases, search areas often become larger, deployment windows become more difficult to manage, and planners must continually reassess priorities as new information becomes available. This creates a cycle of reviewing evidence, adjusting plans, coordinating logistics, and preparing for environmental conditions that can change rapidly.

Modern search organizations are exceptionally capable of surveying the seafloor with advanced sonar, autonomous vehicles, and highly trained crews. The challenge is rarely the ability to search. The greater challenge is determining where to search first and how to prioritize limited operational opportunities. Every search window represents a significant investment of personnel, equipment, and planning.

## From Complexity to Confidence

SDMR SYSTEMS is designed to reduce decision complexity before deployment. By combining independent evidence into a unified operational picture, decision-makers can compare scenarios, measure confidence, and understand the operational impact of each option before committing resources. Rather than treating every potential search area equally, planners can prioritize locations according to measurable confidence and work through them in a structured sequence.

## A Confidence-Based Planning Model

Decision support is not about replacing professional judgment—it is about improving the quality of the information available when those judgments are made. Confidence-based planning allows organizations to align search areas, vessel routing, weather windows, crew schedules, and operational resources into a coordinated plan. As confidence increases, operational uncertainty can be reduced and planning becomes more focused and transparent.

## Operational Factors Considered

- Confidence ranking of search areas
- Weather windows and sea-state planning
- Vessel transit time and routing
- Fuel consumption versus mission duration
- Crew scheduling and operational days
- Equipment readiness and maintenance
- Deployment sequencing and contingency planning
- Resource allocation and mission priorities
- Evidence review and scenario comparison

By reducing the number of competing unknowns before deployment, decision-makers can focus on executing a well-supported operational plan rather than continually reacting to uncertainty.