

# THE CASE STUDY OF EMERGENCY RESPONSE PLAN (ERP) IMPLEMENTATION DURING THE MALAYSIA AIRLINES (MAS) FLIGHT MH370 DISAPPEARANCE

Ahmad Nabil Saroni<sup>1</sup>, Muhammad Asraf Abd Samad<sup>2</sup>, and Jamaludin Ibrahim<sup>3</sup>

*Student, MPSM CITA, International Islamic University Malaysia*

*Student, MPSM CITA, International Islamic University Malaysia*

*Lecturer, MPSM CITA, International Islamic University Malaysia*

<sup>1</sup>nabil.saroni@tm.com.my, <sup>2</sup>asraf.samat701@gmail.com, <sup>3</sup>jamaludinibrahim@iium.edu.my

## ABSTRACT

*The unsolved mystery on the disappearance of Malaysia Airlines (MAS) Flight MH370 has been one of the most highly discussed air crashed incidents in recent times. The doomed flight was en route from Kuala Lumpur to Beijing with a total of 239 people on board. Even after years of investigation and searching efforts that ended recently, investigators have not been able to identify the reason that led to the deviation from its original route shortly after taking off. Accordingly, this case study evaluates the implementation of Malaysia Airlines' Emergency Response Plan (ERP) in handling the incident, particularly in the early crucial weeks. The data were collected from the ERP practices retrieved from several articles, reports, and journals; and they were analyzed by using a qualitative case study methodology. This study hypothesizes that there were a number of loopholes that led to an ineffective implementation of Malaysia Airlines (MAS)' ERP steered by the Emergency Response Team (ERT) and Malaysian authorities; that was further worsened by both internal and external crisis elements ranging from unverified information to the shortcomings in the Search and Rescue (SAR) operation conducted.*

**Keywords:** *Malaysia Airlines (MAS), Emergency Response Plan (ERP), Flight MH370, Effectiveness*

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## 1. Introduction

In 2003, a commercial Boeing B727 airplane owned by American Airlines took off from an airport in Angola without permission and flew erratically until it disappeared and was never found again (Schneider, 2018). This is one of the many recorded cases of flight disappearance since the early 1900s which have caused a great deal of speculations among people in the industries, interest groups, and the publics (Anderson, 2019). As a critical industry, the airline companies are definitely very concern on the safety aspects because of the human factors involved. As more people are using air space as their preferred mode of transportation, the competition among the airlines are also increasing in order to ensure their survival. Hence, any airline accidents by any air carriers, be it in a small or large scale with or without casualties will produce numerous adverse impacts towards their business continuity and reputation.

Prior to Flight MH370 incident, MAS was acknowledged as among the Top 35 safest airlines in the world by Jet Airliner Crash Data Evaluation Centre (JACDEC) in 2014 (JACDEC, 2014). It also had an outstanding safety record and had been rated as 'Category 1' in United States Federal Aviation Administration (FAA)'s International Aviation Safety Assessment Program (IASA) for its compliance with International Civil Aviation Organization (ICAO) aviation safety standards (MIDF,

2014). Despite the recognitions, the Malaysian national air carrier was unable to adopt an effective ERP in coping with a real and large-scale incident like Flight MH370 tragedy.

## 2. Problem Statement

This case study explores how MAS has implemented its ERP during the crucial weeks following Flight MH370 incident discovery. It is argued that MAS was not well prepared with an effective ERP in hands to be initiated and adopted upon the incident discovery. To make it worse, the Rescue Coordination Centre (RCC) that constitutes the Crisis Management Team (CMT) was activated only after five hours after the flight took off and reported as missing (Zafra & Maydell, 2018). Further details on the implementation are discussed further in the following sections. In addition, this study examines the weaknesses associated with the authorities during the commencement of the ERP as well as the aircraft monitoring procedures.

## 3. Literature Review

On March 8, 2014, one hour and nineteen minutes past midnight, Flight MH370 en route from Kuala Lumpur, Malaysia to Beijing, China vanished from the radar screen as it was about to enter the Vietnamese airspace (Lokman & Shah, 2018). Specifically, it was a Boeing 777 (Triple 7) commercial aircraft that carried 239 people which is a long-range wide-body twin-engine jet airliner developed and manufactured by The Boeing Company based in the United States, considered as the biggest in size and capacity for a twin-engine aircraft with a new unit is sold at about USD 258.8 Million (see Figure 1) (Lewis, 2015).



Figure 1: Flight MH370 (Boeing 777 Aircraft)

There are numerous theories and speculations that were reported via many channels after the incident discovery. Following the disappearance, the experts took several hours just to identify the plane's exact course through hourly data connection with a satellite after an extensive sonar searches failed to locate any wreckage at the original search area in the west coast of Australia's water area (see Figure 2). One of the unsolved mysteries even after the final investigation report was published by the Malaysian Government is the reasons why the aircraft diverted from its original route and eventually, plummeted into the Southern Indian Ocean after it ran out of fuel (Chong & Whitley 2018).

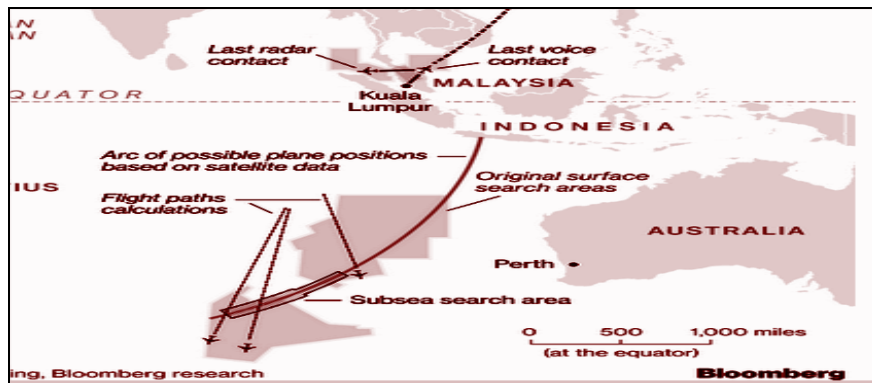


Figure 2: Route Map of Flight MH370

Even after four years following the aircraft disappearance, Flight MH370 Incident Response Team (IRT) led by Civil Aviation Authority of Malaysia chairman (CAAM) Datuk Seri Azharuddin Abdul Rahman was still developing and finalizing the action plan which also includes the recovery plan that would be put in motion after a positive identification of the plane wreckage, or its black boxes, is verified (Lokman & Shah, 2018). Furthermore, a recovery plan was only published in August 2014, four months after Flight MH370 tragedy occurred (Peter, 2014).

The Head of MAS' Post Accident Office, Mr Fuad Sharuji, also admitted that his Emergency Response Team (ERT)'s initial reaction exposed loopholes in the way they dealt with the vanished aircraft. He further added that there were various mistakes that can be identified during the implementation process of the ERP despite his remarks on the comprehensiveness of the plan simultaneously. Mr Sharuji further revealed that even though the airline has conducted a practice emergency scenario where an aircraft crashed into the Straits of Malacca three weeks prior to the incident, MAS was still unable to effectively cope with the real incident (Culbertson, 2018).

During a press conference held to announce the details of the final investigation report of Flight MH370 disappearance, Dr Kok Soo Choon, the lead investigator of the final report did not exactly pinpoint the blame but instead, he stated that there were several crucial protocols that were breached by the air traffic controllers both in Malaysia and Vietnam which ensured the aircraft vanished from the radar screen for twenty minutes before the respective authorities were informed. He further elaborated that the air traffic controllers did not maintain a proper monitoring of the radar, did not release control according to the agreed transfer time, heavily depended on surface information, and failed to initiate the required emergency phases required from them after the incident discovery (Petersen, 2018).

A research conducted by Malaysian Industrial Development Finance Berhad (MIDF), a Malaysian financial services provider in 2014 pointed out that both MAS and Government did not have the capacity and experience in dealing with a high scale airline disaster such as Flight MH370 incident particularly during the occurrence. It was also found out that Flight MH370 incident crisis exposed the vulnerabilities of the security of air travel particularly in the area of aircraft detection methods. In term of emergency response, there are numerous elements that should be prioritized and improved particularly on the timeliness of reaction upon incident detection, information delivery, communication strategies as well as managing the media.

In relation to the communication element, there was a clear lacking coordination between MAS as the owner of the missing aircraft with Malaysian Royal Air Force (MRAF) and the Malaysian Government itself shortly after the incident occurred. There were plenty of communication management identified during the first critical weeks such as sharing contradictory reports, information void and reversed statements (Pieter, 2014). Consequently, MAS struggled to recover its credibility to the public due to misinformation and conflicting messages delivered through the media. (Zafra & Maydell, 2018).

#### 4. Research Model (Variables)

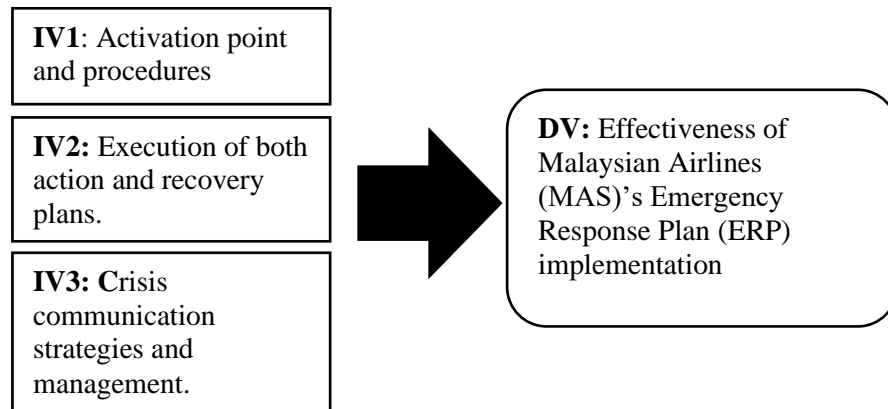


Figure 3: Structured Research Model

A structured research model (figure 3) is being established as to provide a proper reference on what are the variables; both independent and dependent variables; that are qualitatively examined during the research progression. There are three primary Independent Variables (IV) determined and investigated. The three IVs include (1) ERP activation point and procedures, (2) ERP execution of both action and recovery plans, and (3) ERP crisis communication strategies and management. In other words, the IVs comprised of the essential elements that define the effectiveness of an ERP.

In addition, this is a one-facet research model in which this research basically examined the relationship of all the above-mentioned IVs with the only Dependent Variable (DV) included in this model; that is the effectiveness of Malaysia Airlines' ERP implementation during Flight MH370 crisis. Hence, the fundamental focus of this research work is the critical examination of ERP practices implemented by MAS during the crisis management.

#### 5. Research Methodology

This research is a descriptive type of a single case study in which there was only one incident examined; that is MAS Flight MH370 disappearance. The central scope is to identify the emergency plans and procedures executed by MAS under its ERP during the crisis related to the elements of ERP activation, ERP execution, and crisis communication strategies and management.

For this research, qualitative research method is applied during the process of data collection and analysis. The main reason is because some hazards or risks analysis in the aviation industry lend themselves to a reliable analysis mostly through qualitative methods (Skybrary, 2018). The flow of applied research methods is as shown in Figure 4.

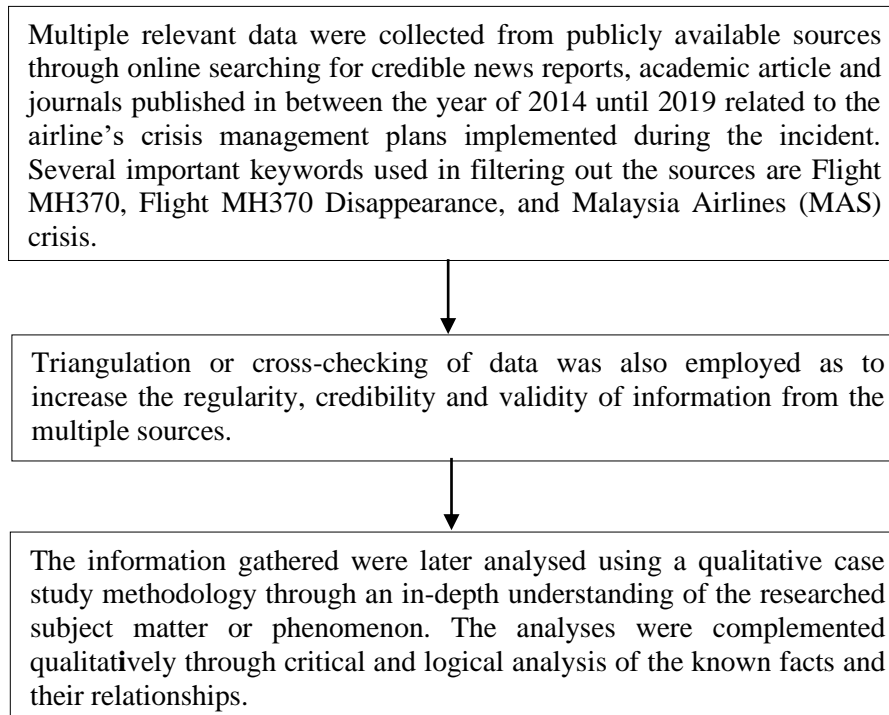


Figure 4: Research methods

## 6. Discussion and Analysis

In line with the hypothesis of this research, there are several loopholes identified that have prompted the ineffectiveness of the ERP implementation. They are further deliberated according to three essential elements of an ERP; that constitute the Independent Variables (IVs).

### 6.1 Activation Point and Procedures

During the implementation of an ERP, the activation points and procedures must be firmly defined by the respective authorities with a particular emphasis on the protocols, initial reactions upon incident discovery, and notifications. In relation to Flight MH370 incident, there was an obvious delay on the notification process in which the air traffic controllers in both Malaysia and Vietnam were significantly late in alerting the authorities about the disappearance of the aircraft from the radar monitor. Air traffic controllers as the front liners in monitoring the whereabouts of all the aircrafts should be highly alerted on the response procedures that should be taken upon the incident discovery. The criticality of their roles in this particular aspect must always be recapped through regular courses and trainings.

### 6.2 Execution of Both Action and Recovery Plans

Furthermore, it is important for MAS' Emergency Response Team (ERT) to keep the factors of Maximum Tolerable Downtime (MTD) and Recovery Time Objective (RTO) as among the primary metrics that must be strictly adhered by the team members. As for Flight MH370 incident, there was no clear mentioned of the acceptable Maximum Tolerable Downtime (MTD) and Recovery Time Objective (RTO) during the incident and, the tolerable period in which it should recover from the adverse impacts of the incident. Due to complex nature of the incident, it was especially difficult to identify those two elements during the early period. Nonetheless, it should be noted the elements must

eventually be determined for MAS to deal with the aftermath's impacts, resume their business operations, and recover from the incident as optimal as it could.

In term of simulating the ERP, MAS had conducted a practice of emergency scenario where an aircraft crashed into the Straits of Malacca three weeks prior to the Flight MH370 incident. It shows that there was a timely schedule of the ERP planned by the team. However, in an actual incident like Flight MH370, there were still plenty of loopholes that can be identified in the procedures as to enhance the practicality of the simulation testing. Henceforward, MAS should further strengthen its ERP development and testing procedures as to improve the level of effectiveness of the ERP in handling future possible incident. Hence, to establish a very capable ERT is another aspect that can be strengthened by the airline. Unwanted scenarios such as delays in notifying the incident, delayed activation of the ERP, and poor communication management that includes information void and reversed statements are among the signs of incapability of if not all, some of the team members. There was also a blame-game portrayed by MAS management with Malaysia Department of Civil Aviation (DCA) which was very unfitting for the public to witness and it certainly exposed poor coordination between MAS and DCA team members.

An emergency drill also must be regularly conducted in order to assess the mobility of various units as well as to strengthen the structure of its response team. With the analysis on the disappearance of Flight MH370 incident, MAS and the authorities must often conduct the risk assessment procedure as to identify possible new risks associated with its core operations and assets; which can further improve the effectiveness in its crisis management based on the severity level of a particular risk factor.

### **6.3 Crisis Communication Strategies and Management**

Likewise, the communication aspect must be cautiously managed during the ERP implementation efforts. During an incident especially related to a critical infrastructure like a missing aircraft, every information delivered to the stakeholders and the public must be verified and screened out before it is being released or announced. Information void is particularly dangerous because it may lead to chaos and distress among the public. Consequently, the organization's reputation will be severely tarnished and further complicates the business continuity and disaster recovery process following the incident. As such, Flight MH370 incident is a worthy example of how a poor communication strategy and management have caused serious damages even years after the incident happened. In the early period, there was numerous unverified information delivered by different parties which have caused anger especially among the victims' family members. In short, MAS should further review their crisis communication plans and procedures as part and parcel of implementing an effective ERP. A smooth communication flow also needs to be enhanced for the establishment of appropriate communication practices between military and public radar centres as to deal with unexpected incidents.

Finally, the main focus of world's aviation authorities must now be on the enhancement in communication avionics. Communication avionics that consist of aircraft tracking system, transponders, Aircraft Communications Addressing and Reporting Systems (ACARS), black boxes and Emergency Locator Transmitters (ELT) must be elevated in line with technological advancement and complexity in the airline industry. The proposed plan by International Civil Aviation Organization (ICAO) in considering a real-time satellite tracking of aircrafts would certainly be useful in responding to this incident.

## **7. Conclusion**

A case study on the Emergency Response Plan (ERP) implementation during the disappearance of Malaysia Airlines (MAS) Flight MH370 is presented in this article. To sum up, a well-established ERP can be beneficial to a critical organization such as MAS in effectively managing possible emergency incidents and ensuring its business continuity in the aftermath. Implementation of an effective ERP should provide a systematic and specific practice for MAS to adopt after a crisis has

occurred in order to protect the airline from any undesirable liabilities. For that reason, a proper ERP framework advocated by multiple aviation bodies and other airlines would be able to guide its Emergency Response Team (ERT) in making a correct decision in time of great distress like Flight MH370 disappearance. MAS as the premium national air carrier of Malaysia must continue to enhance its capability and reputation by benchmarking its past experiences for a continuous process of changes for improvements. The course of actions under its ERP should be well-implemented and would certainly be accommodating in dealing with future unexpected incidents.

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**Appendices (Literature Review Summary Tables)**

<b>Author, Published Year</b>	<b>Title</b>	<b>Points Summary</b>
Zafra & Maydell, 2018	Facing the information void: A case study of Malaysia Airlines' media relations and crisis communication during the MH370 disaster	<p>On March 8, 2014, 1 hour and 19 minutes past midnight, flight MH370 en route from Kuala Lumpur, Malaysia to Beijing, China vanished from the radar screen as it was about to enter the Vietnamese airspace.</p> <p>Crisis Management Team (CMT) was activated only after 5 hours after the flight took off and reported as missing by MAS and the respective authorities.</p>
CBC, 2014	Malaysia Airlines MH370: Mystery Unsolved	There was an obvious delay on the notification process in which the air traffic controllers in both Malaysia and Vietnam were fundamentally late in alerting the authorities.
Lokman & Shah, 2018	Plan of action when MH370 is found	MH370 Incident Response Team (IRT) was still developing and finalizing the action and recovery plan that would be put in motion after a positive identification of the plane wreckages or its black boxes.
Pieter, 2014	The Two Malaysia Airlines Disasters in 2014: Lessons for Airline Management in a Global Context	A recovery plan was only published in August 2014, four months after the MH370 tragedy happened which is considered as a very major delay for an incident at this large scale.
Culbertson, 2018	Malaysia Airlines admits it 'made mistakes' over handling of missing MH370	A practice emergency scenario where an aircraft crashed into the Straits of Malacca three weeks prior to the incident, MAS was still unable to effectively cope with the real incident.
Pieter, 2014	The Two Malaysia Airlines Disasters in 2014: Lessons for Airline Management in a Global Context	There were plenty of miscommunication management identified during the first critical weeks of the incident such as sharing contradictory reports, information void and reversed statements.