Organisational ineffectiveness: environmental shifts and the transition to crisis

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Abstract

Purpose – The purpose of this paper is to explore the notion of effectiveness in the context of organisational crisis. It considers the "darker" side of organisational effectiveness by exploring the processes by which effectiveness can be eroded as an organisation moves from an ordered state, through a complex one, and into a state of chaos, or crisis. It brings together complementary literatures on risk, crisis management, and complexity, and uses those lenses to frame some of the key processes that allow organisations to transition to a state that shapes their inabilities to remain effective.

Design/methodology/approach – The paper sets out a theoretical framework for the analysis of a crisis event and does so in a way that emphasises the role of the human element in the various stages of a crisis: the incubation phase, the operational crisis, and the post-event legitimation phase. The paper uses the emerging crisis around the disappearance of Malaysia Airlines flight MH370 to illustrate some of the task demands associated with a crisis and the manner in which crisis events challenge the efficiencies and capabilities of organisations to deal with complex, multi-layered issues in which uncertainty is high. Given the emergent nature of that particular crisis, the use of the case is purely illustrative rather than analytically grounded in a normal case study approach.

Findings – The paper highlights a number of underlying elements that contribute to the generation of crises and offers recommendations for managers on how to deal with those demands. The paper shows how an organisation can move from an ordered state into a complex or chaotic one and highlights some of the problems that arise when an organisation does not have the capabilities to respond to the task demands generated by such a shift in the environment.

Practical implications – The paper challenges some of the normal practices of management in a "steady state" environment and highlights the need to consider the organisational capabilities that are necessary to deal with the transition from a stable to an unstable system state and ensure organisational effectiveness in the process. A core message within the paper is that the "normal" processes of management can contribute to the generation of crises as organisations prioritise short-term efficiencies over the strategies for longer-term effectiveness. The implications for crisis management practices are discussed.

Social implications – The paper considers an issue that has wider applicability within society namely the relationships between organisational effectiveness and risk. The issues raised in the paper have applicability in a range of other societal settings.

Originality/value – The key output from the paper is the development of a theoretical framework that allows for an analysis of the relationships between crises and organisational effectiveness. The paper argues that effectiveness and crisis management are intrinsically linked and that crises occur when organisational effectiveness is impaired. The paper highlights the role that template-based approaches to dealing with complex problems can have in terms of the generation of crisis events.
Keywords Organizational effectiveness, Risk management, Human error, Organization crisis
Paper type Research paper

Introduction

> There's an argument that the further you are from risk, the less aware of it you become. We are very aware, so we don't half keep an eye out for it (Bonhomme, 2014, p. 110).

The opening comment, made by a serving British Airways pilot, raises an important issue in terms of the ways in which risk (and, ultimately, a crisis) is managed within complex, socio-technical systems. Those who manage the performance of the system and who also bear the costs associated with its failure, are invariably acutely aware of the implications of any erosion in organisational effectiveness at multiple points in space and time. Aviation is a particularly interesting example of this process as it is often seen as a highly effective and safety conscious sector but one that clearly has the potential for failure. It places human operators in direct contact with complex technologies and does so in an environment where failure of critical systems can have dire consequences. Whilst failures are often attributed to errors on the flight deck there is mounting empirical evidence that supports the role of latent conditions in generating those errors (Harris and Li, 2010; Li and Harris, 2006; Li *et al.*, 2008), thereby highlighting the wider issues of organisational effectiveness in the "incubation" of a crisis (Turner, 1976, 1978, 1994).

When a commercial aircraft does crash, and especially one from the more prestigious airlines, there is often a heightened level of interest in the nature of the failure – with questions being asked as to how a well-managed company can experience such a catastrophic event? All too often, the focus is on the potential for pilot error as a root cause of the event. However, this is something of a flawed notion as it invariably focuses on active errors by the human operators, rather than considering the wider issues of latent factors in the generation of the event. The assumption can be challenged, however, by the numerous examples of failure that have complacency and the perceptual minimisation of risk at their core (Reason, 1990, 1997; Trivers, 2013). Where the causal factors are unknown or ambiguous, or where there is seen to be the potential for common-mode failures (i.e. with a fault in the technology itself) then there is often the potential for the event to be seen as presenting a set of generic risks, and is, therefore, one that can effect other organisations in the same industry. The discussion of such wider vulnerabilities has the potential to escalate a catastrophic accident and organisational crisis into a much wider event.

The effectiveness of any aircraft in flight is a function of the performance of the pilots, the core technologies in use, air traffic control, weather systems, ground-based maintenance, organisational and security processes, and a range of other activities across airports, aircraft supply chains, and a number of monitoring organisations that provide in-flight data management (de Carvalho, 2011; English and Branaghan, 2012; Kontogiannis and Malakis, 2012; McCarthy, 1989; Shappell *et al.*, 2007). Failures within a broad range of activities across the system could potentially have

an adverse impact on effectiveness that could ultimately (however unlikely) impact upon the effectiveness of an aircraft in flight. There is, therefore, often a separation between those who deal with the day-to-day management of risk at the sharp end from those who design, manage, and support the system at a more strategic level. The assumption is often made that those who deal with the sharp end of the system are thought to be sufficiently trained and skilled in dealing with the potential that exists for any movement away from the system's "designed-for" state. However, emergent conditions arising from the interactions between systems components can serve to move it away from its designed-for state into one that is potentially unstable. In addition, the various contexts within which individuals and teams function at the operational core of the wider system are shaped by the decisions and actions taken at more strategic levels and which give rise to the creation of "error traps" or "latent conditions" (Reason, 1990, 1997). Put another way, those who design and manage the system have the potential to generate conditions that impact on the effectiveness of those who work at the operating core of the organisation. As a consequence, the achievement and maintenance of effectiveness within a system is not likely to be uniform across space and time. The result is the creation of a set of fractures within controls that allows an organisation to incubate the potential for failure as a consequence of these fault lines (Reason, 1990, 1997; Turner, 1978, 1994).

The aim in this paper is to consider the nature of the relationships between effectiveness and crisis and to frame the conceptualisation of their interactions within the context of rapidly changing environmental shifts. More specifically, the paper conceptualises the notion of ineffectiveness as an underlying driver for crisis and it frames and contextualises it as part of the "incubation process" around failure (Turner, 1978, 1994). Of particular concern here is the attempt to address the notion of crisis through a multi-disciplinary lens and, in so doing, to highlight some of the broader implications for people management. In particular, the role of human resources function can be seen as an essential element of the processes around prevention, mitigation, response, and recovery. In each of those phases, people management is an essential component of the effectiveness of the organisation through such issues as dealing with insider threats, the reduction of human error (both latent and active), the development of crisis management teams, the impact of stress within a crisis on organisational performance, and the challenges around the survivor syndrome. Each of these issues represents areas of research that would warrant further attention within this journal.

The approach taken here is framed by work on systems thinking, (Ashby, 1958; Boisot and Child, 1999; Fortune and Peters, 1995) and notably by the processes around soft systems methodologies (Checkland, 1981; Checkland and Scholes, 1990) as a means of shaping the dynamics of these complex, multi-layered relationships. The paper uses the first 100 days following the disappearance of Malaysia Airlines MH370 as a means of illustrating some of the issues associated with the move from effectiveness towards crisis. Given the emergent nature of that particular case, our discussions here will be limited to the period covered by the first 100 days of the crisis and the analysis of the issues will inevitably be partial as the cause of the disappearance remains at unknown at the time of writing. The paper will not deal with the subsequent loss of the second Malaysia Airlines plane MH17, that was shot down over Ukraine on the 17 July 2014 with the loss of all 283 passengers and 15 crew members. Whilst that tragedy raises a further set of issues around

organisational effectiveness – especially in terms of the decision making process for flying over conflict zones – it is beyond the scope of this paper to consider both cases simultaneously. There are undoubtedly issues that will emerge from both events that have implications for the relationships between organisational effectiveness and crisis. This will be especially the case as information around both events is made available through the investigations' processes. Similarly, the impact of the tragedies on the performance of Malaysia Airlines will also be an issue that unfolds over time and early indications point to the negative impact of the two events on the company's share performance (Topham, 2014; West, 2014). Before examining elements of the MH370 case, it is first necessary to consider the relationships between effectiveness and crisis in more detail and to set out a theoretical framework within which to conceptualise this relationship.

The nature of crisis

The notion of organisational effectiveness is invariably affected by the generation of these fault-lines within and between organisations. The manner in which an organisation can transition from an effective state to one of crisis is a function of a range of interactions at various levels of the organisation and across its supply chains. Thus, at any point in time and space an organisation will only be as effective as its most critical elements allow and its performance will invariably be perceived differently by those who interact with it across the range of its activities. Effectiveness is, therefore, essentially defined across space and time. It exists differentially across this organisational space, and it will be "defined" by those who interact with it across the range of organisational activities. Thus, effectiveness can be both "real" and perceived at different points in space, place, and time thereby making the determination of effectiveness by management somewhat problematic and ephemeral.

A crisis is also a state that is invariably "defined" by those who witness it – as such, it is also open to multiple interpretations. Most people would consider an organisation in the middle of a crisis event as being one that is not effective. It is, after all, in a situation that it is finding difficult to control and manage. However, the state of "being in a crisis" is one part of the spectrum of processes within crisis management and there are other, less visible, process that lead up to that point. This paper argues that a crisis occurs across three interconnected stages – a crisis of management (that allows the potential crisis conditions to develop), an operational stage (where the organisation is seeking to contain the high-energy situation that is causing harm), and the crisis of legitimation (the period after the event where the organisation seeks to recover its reputation and to learn lessons from the experience) (Smith, 1990, 2006b). There has been some criticism of those who see the crisis process as operating simply in a response mode and who fail to see the importance of the precursor and legitimation/learning conditions to the "operational" stage of the event (Smith, 1990, 1995, 2006a). Effective crisis management also considers the processes of turnaround and organisational learning as an integral part of the process (Smith and Elliott, 2007; Smith and Sipika, 1993). These three stages of crisis are also set against shifts in the environment as the organisation moves from an ordered, through complex, to chaotic systems state. These systems states are drawn from research in systems biology as a means of explaining how organisms develop the "fitness" to cope with the task demands generated by their environmental settings (Kauffman, 1993; Kauffman and Johnsen, 1991).

The notion of a crisis is, therefore, one of a complex, multi-level phenomenon. It is one that needs to be contextualised in the spatial and temporal setting in which it occurs if we are to make sense of the factors that led to its occurrence and the ways in which it was managed. Within each of the phases of a crisis, and at particular points in space and time, an organisation may function in an effective manner; whereas, in other settings, its lack of effectiveness in one part of its operations, may serve to trigger adverse conditions that escalate to crisis. It may be, for example, that the organisation had an effective set of crisis management capabilities but it has poor horizon scanning skills and was therefore unable to foresee a rapid shift in the environment that overcame its capabilities to respond. It may also be the case that the scale of these environmental shifts was so great that it created emergent conditions that, despite having well-developed crisis response plans, made those plans inadequate or dysfunctional. The organisation could also be in a state of crisis because the event was triggered by the intentional acts of a third party – a hostile attack, for example, that systematically sought to by pass the controls that were in place to protect the organisation – although this would also raise questions about the effectiveness of the organisation's security processes. Of course, none of these factors may apply and the organisation may simply be one that is crisis prone as a function of its poor managerial practices (Pauchant and Mitroff, 1992; Turner, 1994). What is obvious is that the notion of "being in crisis" can take multiple forms and can arise from multiple triggering events and as a result crisis management, and its relationships with organisational effectiveness, is a complex, multi-level issue.

At this point we need to provide a definition of crisis that serves as a means of entering into a wider discussion around the multi-layered nature of the term and its associated processes. For our present purposes, a crisis is defined here as:

> A complex, multi-level event that exceeds, or comes close to exceeding, the capabilities of the organisation to respond to the task demands that face it and without the need for significant additional (often external) resources being brought to bear. It provides a fundamental challenge to the effectiveness of an organisation in terms of its abilities to prevent, mitigate, or respond to these task demands and processes.

This definition highlights both the internal and external dynamics of crisis and frames it within the notion of organisational (dynamic) capabilities and resources (both human and material). Implicit within this definition is the importance of the organisation's environment and its changing dynamics in shaping the particular nature of a crisis. Thus, a crisis can be seen as being predicated on the symbiotic relationships that exist between demand and response, where these relationships often play out over time and across space, and where effectiveness sits at the core of the process.

Contextualising crisis and organisational effectiveness: two sides of the same coin?

> Given the impact of crises on organizational reputation, legitimacy, and ability to execute organizational goals, crisis management has risen in prominence as an organizational function (Fediuk *et al.*, 2010, p. 221).

The notion of a crisis is something of a contested term. In common usage, the term is often used to describe events that are traumatic, but which fall short of the pervasive nature of failure that is associated with a crisis. In some cases – the NHS being an often

quoted example – commentators claim that an organisation is in a constant state of crisis. This tends to underestimate the significance of the term, as a crisis should describe events that, unless mitigated, will provide a significant challenge to the continued existence of the organisation or severely damage its reputation (Smith, 1995). Organisations that are perceived to be constantly "in crisis" are invariably operating in a chaotic systems state and are constantly readjusting their actions and activities in an attempt to deal with the task demands of the event. Perhaps a better way of describing such organisations is that that they consistently display the potential for crisis but may well have adapted to satisfice on the edge of a crisis state. In an organisational setting, the term "crisis" should be used to describe events that push the organisation to the limits of its capabilities – in other words, a crisis should challenge the organisation's abilities to cope with the task demands of the event within its existing resource and capability structures and without additional damage occurring. Such damage can be physical, economic, or reputational and may be immediate or delayed in terms of its effects. A crisis, therefore, has the potential to unfold over space and time to cause harm to organisations and it can be seen as being either acute or chronic in the manner in which it escalates. At its core, a crisis challenges the abilities of an organisation to be effective in terms of being able to prevent the damaging event from occurring, mitigating and responding to its consequences once it does occur, and recovering from the adverse consequences that it generates. These four processes – prevention, mitigation, response, and recovery – are key elements of organisational performance against which effectiveness, in terms of crisis management, will invariably be judged. Each of these processes can be seen to generate task demands around organisational capabilities, especially in terms of the development of routines and protocols, which help identify and mitigate early warnings of crisis. Whilst an argument can be made that these should be seen as core attributes of management (Smith, 1995, 2005), they are often subjugated in the search for efficiencies.

The academic literature on risk and crisis management[1] has maintained a focus on the evolutionary and adaptive nature of crisis and has provided an on-going critique of the command and control models of management. The interaction between an organisation and its environment, along with the internal changes and adaptations that occur, create the potential for emergent conditions that move an organisation away from its designed for state and begins to erode its effectiveness as a consequence. An additional element of interest here relates to the manner in which the organisation's environment can change and the responses made to those shifts will also determine how effective the organisation is in adapting to the new task demands. The further the organisation is moved away from its "normal" operating conditions, the greater the chance that will spiral into a state of crisis. Any vulnerabilities within an organisation's control systems will invariably impair its effectiveness when it is moved out of its designed for state.

Our awareness and understanding of the threats that we face are key elements in shaping the ways that we respond to those threats and there is a large body of work that deals with the range of barriers that seem to inhibit that understanding (see e.g. Elliott and Smith, 2006; Elliott *et al.*, 2000; Smith and Elliott, 2007). Our levels of awareness are important elements within the processes of threat recognition and the subsequent development of mitigation and response strategies used to deal with those threats. To achieve effectiveness, organisations need to ensure that early warnings of potential failure are dealt with in an appropriate manner. Effective threat recognition

is, however, often inhibited by paradigm blindness, where decision makers deny the plausibility of particular threats and fail to develop appropriate mitigation strategies as a consequence (Fischbacher-Smith, 2012). If this results in a lack of recognition of the significance of early warnings around a particular threat, then there is no impetus for managers to develop a greater understanding of the nature of the phenomena – organisations therefore become blind to the risk (in terms of both its probabilistic and consequential components) because it does not fit their world view and it is therefore dismissed as not being credible. This process is more problematic for those events for which there is little or no prior experience of failure as the evidence base is invariably limited. In combination, these processes of denial and self-deception generate organisational practices that are typified by their ineffectiveness in dealing with the potential for failure (Trivers, 2013). As a consequence, they allow crises to incubate as a function of routine activities.

We can conceptualise the relationships between crisis and effectiveness in terms of the ways in which an organisation is seen as being prone to crisis and/or equipped to deal with the task demands generated by a crisis event. Whilst this distinction between the crisis prone and crisis prepared organisation (Mitroff *et al.*, 1989; Pauchant and Mitroff, 1992) seems on the face it to be a binary process, these should be seen as absolute states of being with a set of transitional states existing between them. Figure 1 highlights the main elements associated with these two system states and their interconnected nature. What Figure 1 seeks to illustrate, albeit in a simplified manner, is the interconnected and temporal relationships between being an effective organisation and one that is ineffective (and therefore potentially prone to crisis). The implication is that all organisations, irrespective of how effective they are, have the potential to be faced with a crisis event, which results from either internal or external factors or a combination of the two. Clearly, those organisations that are ineffective in dealing with the shifts in organisational task demands are likely to be more prone to a crisis event. It is here that Perrow's notion of "normal" accidents is important in our understanding of the transition from one systems state to another. Perrow argues essentially that the normal day-to-day processes within a system have the potential to fail and that these failures will expose the vulnerabilities that exist in the normal functions and processes within organisations.

Generally 'effective' organisations

A

Organisational Effectiveness

Organisational Crisis

B

Organisations with Crisis prone tendencies

Organisational controls are effective in dealing with the task demands generated by the organisation and its environment, especially in terms of identifying and dealing with aberrant behaviours and responding to early warnings. May be typified by the some of the characteristics of high reliability organisations although the potential for "normal" accidents remains

Emergent fractures across a number of key controls allow for the erosion of dynamic capabilities within the organisation. Information flows are inhibited and this compounds problems around sense making, emergence, and control. Steady state effectiveness may be impacted upon by "normal" accidents. Typified by a complex environmental setting

Downward spiral of ineffectiveness allows multiple layers of defences to be systematically by-passed resulting in the onset of a crisis. If uncorrected, these conditions have the potential to result in the failure of the organisation to survive in its current form
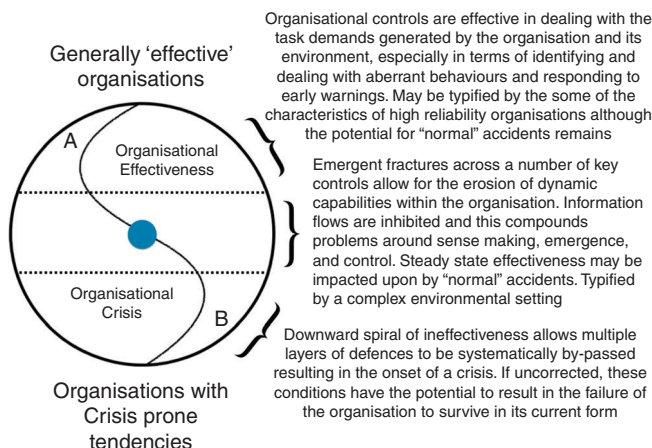
Figure 1.
Crisis and effectiveness as symbiotic processes

These vulnerabilities are ultimately exposed through the structural aspects of organisational systems and these can be expressed in terms of its complexity and tightly coupled nature (Perrow, 1984, 1997, 1999, 2004). These failures can take place at different levels of the system from the operating core through to the more strategic elements and the nature of the coupling and complexity can allow incidents to escalate into more damaging accidents (Shrivastava *et al.*, 2009a). The interactions between these different levels of the organisation and their relative contributions towards failure reflects Turner's earlier work on incubation, and is also related to Reason's distinction between latent and active errors in organisational failure (Reason, 1990, 1997; Turner, 1976, 1978, 1994). Irrespective of the root cause of the failure process, the more "interactively complex" the system and the more "tightly coupled" the speed of interaction is between systems components, the more likely the system is to rapidly spiral out of control (Perrow, 1984). Thus, attempts to develop more efficient organisations – with a focus on such processes as just in time (which can rapidly become "just to late") – may result in an erosion of organisational effectiveness and aid in the transition to crisis.

There are three important elements to understanding the nature of a crisis. The first is the nature of the environment in which the organisation is operating. The second concerns the capabilities of the organisation to respond to the task demands generated by these environmental characteristics. The third element relates to the emergent state of crisis itself – at what stage of a crisis is the organisation perceived to be in at a particular point in space and time? For our current purposes, we can conceptualise this process within a systems "space" that incorporates these three elements and this is illustrated in Figure 2. Effectiveness thus has to be judged against the very different task demands generated in each of these crisis states and at different points in space and time.

Effectiveness can be seen, therefore, as a multi-level and multi-speed process that is a function of the interaction between the capabilities within the organisation and the impact of the environment upon these capabilities, with the whole process evolving over both space and time. Within Figure 2, the environment in which the organisation operates is shown in terms of the three systems states that have been outlined by
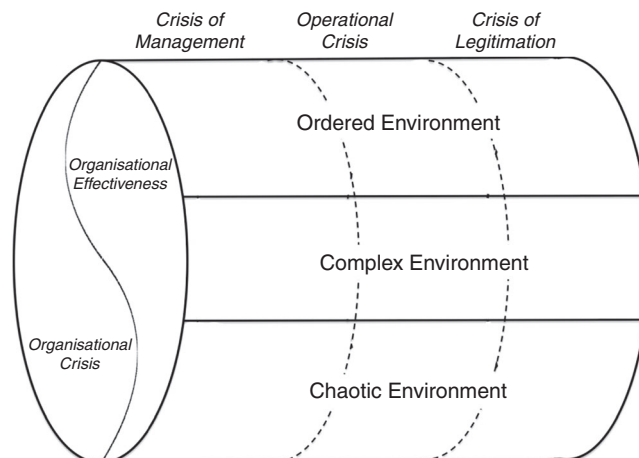

Figure 2.
Framing effectiveness
and crisis

Kauffman (1993); and Kauffman and Johnsen (1991) namely: the ordered, complex, and chaotic states. Each of these environmental states will bring with them a range of different task demands and the organisation's abilities to deal with these demands will be a measure of its "fitness" or effectiveness. The task demands generated in each of these three systems states will require a range of organisational capabilities that will allow it to transit these changes in environmental conditions and to do so on different time scales. It is our contention that this "fitness" will also be manifest across the three distinct, but interrelated phases of a crisis: the crisis of management, the operational crisis, and the crisis of legitimation (Smith, 1990). Within the crisis of management phase, it is the (in)abilities of the organisation to cope with the environmental task demands that will incubate conditions that will ultimately determine its transition to a crisis (Turner, 1976, 1978, 1994). This can occur as a function of a range of "normal" processes (Perrow, 1984) in which the errors and violations of operators and decision makers (Reason, 1990, 1997) may serve to set the conditions for a transition to crisis once a shift in environmental conditions exposes these vulnerabilities. Small deviations in operating processes – a set of routine violations – can lead the organisation to deviate from its designed for state in such a way that emergent properties start to move the system outside of the established parameters of control (Smith, 2005). One example of this incubation process can be seen to occur around the financial crisis, where the assumptions made by key figures within the sector about the products that they offered and the way in which the market would perform, ultimately created the conditions for failure as the sub-prime market started to collapse.

This type of initial failure, moves the organisation into the "operational crisis" – that phase normally associated with a crisis event (Smith, 1995). Obvious examples here include those catastrophic failures where the emergency services are required to effect rescue and where the event spirals out of the control of managers within the organisation. The release of methyl isocyanate from the Union Carbide plant in Bhopal is an example of this uncontrolled state of crisis (Hazarika, 1987; Lapierre and Moro, 2002; Shrivastava, 1987). The operational phase of a crisis can also be typified by a "slow burn" event where the crisis builds in momentum over a long period of time. The Yewtree inquiry into the post-Saville abuse case in the UK is an example of such an event where the initial crisis became much broader in its scope and impact.

The final phase of a crisis is seen as the "crisis of legitimation", in which there is a search for culpability and blame as various groups seek to make sense of the failure process (Smith, 1990). This phase also represents processes around organisational turnaround, business recovery, and the repairing of reputational damage which, if they are not dealt with, may trigger a further crisis (Sipika and Smith, 1993; Smith and Sipika, 1993). In some crises, the legitimation phase can generate task demands for the organisation many years after the event. Perhaps the most obvious example concerns, the terrorist attacks on the USA in 2001, but another example would include the crowd crushing accident at Hillsborough in 1989 that is still the subject of formal investigation in 2014[2] (see, e.g. the press coverage around alleged cover-ups: Brown, 2014).

It is within this "space" that these processes interact and which gives rise to the perception of effectiveness, its defining characteristics, and the organisational responses to the range of task demands that are generated in each systems state. A key element of the process of determining effectiveness will be the ways in which the

organisation can create, validate, and utilise its knowledge-based resources as a means of shaping the responses to these task demands across all three phases of a crisis. To use Rumsfeld's (2002, 2011) categorisation, this involves recognising that many of the so-called "knowns" are often shrouded by a number of unknown elements. It also requires organisations to recognise that there are limitations imposed upon decision making by the "known unknowns" and that the assumptions made about these can also shape the incubation of crisis. Finally, there are clear issues around those elements of failure potential that we simply do not recognise, never mind understand (the "unknown unknowns") and that can arise both through a lack of knowledge and insight, but which may also be generated as a function of paradigm blindness. An effective organisation recognises the nature of this spectrum of uncertainty around knowledge and ensures that it's information capturing processes seek to recognise the lack of precision that sometimes accompanies discussions around risk (consisting of both probability and consequence). This invariably includes significant elements of these unknowns and especially around issues of cause and effective relationships, predictive validity, and the burden of proof. What typifies the Rumsfeld categorisation is the importance of knowledge in shaping both the sensemaking and the communication processes within organisations. The failure to acknowledge the limitations of the knowledge base underpinning decisions is a key aspect in the processes around incubation.

Thus, we might argue that effectiveness, risk, and uncertainty are linked as constructs in a symbiotic set of relationships that occur across a range of environmental states. An organisation can only be effective if it understands the limitations of its own knowledge base, the extent to which its known risks are cloaked in uncertainty, and the limitations of expert judgements around the burden of proof and the construction of knowledge. What also becomes important in this context is the manner in which the time constraints generated in each of these systems states impacts on the processing of information (especially in terms of the steps needed to decode that information). In a rapidly changing task environment, this ability is a key attribute. A key element of these relationships centres on the abilities of the organisation and its members to "control" the processes at work – a point illustrated by the case of MH370.

The disappearance of MH370 – challenges for organisational effectiveness
On the 8 March 2014, a Malaysia Airlines Boeing 777 (MH370) disappeared on a routine flight en route from Kuala Lumpur to Beijing. The aircraft was carrying 227 passengers and 12 crew (BBC News Asia, 2014a), there was no known mayday call from the aircraft[3], and no wreckage belonging to the aircraft has been found on any of the alleged routes that the plane had been deemed to take[4]. As of the end of September 2014, there was no conclusive evidence as to the location of the aircraft or the reasons behind its disappearance (BBC News Asia, 2014a). This was despite an extensive search, the raising of a number of false alarms about wreckage being spotted, and a series of alleged sightings of the aircraft at different locations (Branigan *et al.*, 2014; Lagan and Lewis, 2014a; Pank and Bremner, 2014). The aircraft is believed to be somewhere in a 60,000 km^2 area of the Southern Indian Ocean (Australian Transport Safety Bureau, 2014; BBC News Asia, 2014b).

The crash of an aircraft would normally be considered as a crisis for the operating company due to the potential loss of life, the need to deal with multiple stakeholders, the loss of the airframe itself (and the compensation requirements associated with mass

fatalities), along with the damage to the organisation's reputation (see, e.g. Sipika and Smith, 1993; Smith, 1992). The loss of MH370 was even more problematic because the plane had simply disappeared and there was little information regarding its potential whereabouts or the reasons for its disappearance. This information vacuum raised an additional set of questions about the company's abilities to control its operations, monitor its aircraft and assess the suitability of its aircrew to fly. These issues, which could be seen as essential elements in determining the airline's effectiveness, served to move the organisation into crisis. The fact that the company could not provide answers to the whereabouts or status of the aircraft had an impact on the company's reputation, an issue that was fuelled in part by the intense speculation that took place in the first 14 days of the crisis. The crisis quickly spiralled out of the control of Malaysia Airlines and saw the Malaysian Government play an increasingly pivotal role in briefing the press about the nature of the disappearance and exposing tensions with other nations in the process (Wan and Denyer, 2014). The search for the plane in the early stages of the crisis was reported to involve some nine countries and in the order of 34 aircraft and 40 ships (Denyer and Harlan, 2014). The problems were compounded when it became clear that the transponder on the plane may have been deliberately switched off as the aircraft left Malaysian airspace giving rise to intense speculation about the potential causes of the disappearance (Doward *et al.*, 2014; Hodal, 2014; Hodal *et al.*, 2014a; Hookham and Sheridan, 2014). Some of this speculation invariably focused on intentional human actions, either by the pilots or passengers on board the aircraft (Doward *et al.*, 2014; Hodal, 2014; Hodal and Kaiman, 2014; Lewis, 2014a, b, c; Lewis and Lagan, 2014), although there was no firm evidence to support many of these theories beyond the fact that the transponder "stopped working" as the aircraft left Malaysian airspace. There was also some speculation around latent errors (Bremner and Lewis, 2014; Lagan and Lewis, 2014b; Sheridan, 2014) – those aspects of organisational culture that can create the conditions for failure – although again there was little in the way of evidence to support such theories.

The difficulties associated with determining what was known about the nature of the aircraft's disappearance generated problems not just for Malaysia Airlines but also for the Malaysian Government, as both sought to provide information to relatives and the media about the fate of the aircraft. The effectiveness of these two organisations was judged, in part, by their apparent inabilities to deal with the informational task demands that they faced and to provide answers as to why their information appeared to be so sparse. This was further compounded by the comments expressed within the media around the control (and monitoring) of aircraft. In this case, the lack of precise information about the whereabouts of the aircraft generated considerable surprise and debate within the media and challenged the popular assumption that our increasingly sophisticated technical systems provide airline operators with up-to-date and accurate information about their aircraft. To an extent, the disappearance of MH370 illustrated the limitations of organisational control and information provision, and highlighted the manner in which routine operations can fail without much prior warning, raising questions about the nature of organisational effectiveness.

MH370 challenges the presumption of control within socio-technical systems. It also illustrates how organisational factors can heighten the impact associated with a failure event once those controls cease to function effectively. This was apparent when it emerged that there were delays in the organisational responses to the initial

disappearance of the aircraft (Ministry of Transport, 2014). The lack of clear and credible information and evidence also served to generate a high level of uncertainty within the crisis response process and this caused additional speculation in the press as to what might have happened to the aircraft. This speculation involved a range of allegations, including those that the Malaysian Government was not providing all of the information that they had about the aircraft's known movements (Branigan, 2014a; Wan and Liu, 2014). Media speculation also ranged across such contributing factors as terrorism, hijacking, pilot suicide, airframe failure, cargo fires, and other forms of catastrophic mechanical failures of the aircraft (Bremner and Lewis, 2014; Doward *et al.*, 2014; Halsey *et al.*, 2014; Hodal, 2014; Lagan and Lewis, 2014b). In one particular case, a suggestion was made that this might be an example of the world's first cyber hijacking (Fielding and Winter, 2014; Robinson, 2014), although there was no evidence provided to support this claim beyond a reference to it being theoretically possible!

Ironically it was the lack of information and evidence that was then seen by some in the media as a major driver behind the speculation (Farhi, 2014), thereby generating a vicious circle of misinformation that created additional task demands for both the Malaysian Government and the airline operator. MH370 also illustrates the manner in which constrained information flows can generate conditions that can move an organisation into an unstable state and which can then contribute to the rapid onset of a crisis. The context in which any crisis takes place is both conditioned by such information shortcomings and also by an organisation's inabilities to cope effectively with these additional task demands. Thus, the problem becomes self-reinforcing – the inabilities of the organisation to deal with the uncertainty adds a further layer of complexity and uncertainty to the crisis as the organisation is perceived by external actors as having little, if any, control over the events. The resultant speculation and the development of conspiracy theories also adds to the task demands facing the organisation and may inhibit the effective recovery after the event.

The case of MH370 also illustrates many of the characteristics of an organisational crisis event. It shows how an apparently effective organisation, working under relatively steady-state conditions, can quickly move to a highly unstable crisis state. Here, both the operating company and the Malaysian Government rapidly moved into a state of "crisis" as a result of the aircraft's disappearance and this was escalated further, largely as a function of their inabilities to provide accurate information about the aircraft, the attention of the media, and the need to co-ordinate an international search operation over a vast geographical area. Both organisations were faced with the difficulties associated with trying to account for the whereabouts of the aircraft, the manner of its disappearance, the demands for information from grieving relatives, and the additional task demands generated by the intense media interest in the disappearance. The MH370 crisis was particularly characterised by the extent of the "unknowns" surrounding the disappearance of the aircraft thereby illustrating the limitations of our knowledge about the ways in which some "systems in use" function. For MH370, this centred on the extent to which both weak signals and the range of the potential unknowns (arising through a lack of information as well as emergent conditions) were managed, both before and during the crisis. It illustrates how important uncertainty is, especially around the escalation of a crisis, and how it needs to be incorporated into our decision making, communication, and approaches to contingency planning. The early stages

of the MH370 crisis were marked by conflicting information, uncertainty, and a range of concerns about the effectiveness of the search and rescue response carried out by the Malaysian Government. This led to allegations from the Chinese Government in the early stages of the crisis that the search and rescue activity was typified by "too much confusion" (Phillips and Moore, 2014). Given the absence of evidence relating to the fate of MH370, this confusion could be seen as a natural outcome of the early stages of a crisis and has been found to occur in other events where the nature of causality has not been determined early in the process (Sipika and Smith, 1993; Smith, 1990; Smith and Sipika, 1993). The disappearance also shows the multi-level nature of the challenges generated by a crisis and the implications that such events have for our understanding of organisational effectiveness. It illustrates the heightened emotional state amongst stakeholders that invariably surrounds loss of life events of this nature. Many of these challenges sit outside of the "normal" task demands faced by organisations, especially in terms of task complexity, the management of uncertainty (and the associated processes around the management of emergent conditions), along with issues relating to the management of scale (which often become manifest in terms of the spatial, interorganisational, and temporal aspects of the crisis).

MH370 shows how the notion of organisational effectiveness and the perception of crisis can be intrinsically linked. It challenges the unitary measure of both the nature of effectiveness (as a managerial and procedural construct) and the conceptualisation of crisis as a "state of being" for an organisation. Both terms, it is argued here, need to be considered as multi-layered issues (Yammarino and Dansereau, 2002) as they are concepts which defy simple interpretations and they are also invariably determined by a complex set of interactions between internal organisational processes and external challenges and task demands. Changing environmental conditions ensure that an organisation can only be effective at certain points in space and time and, therefore, an organisation cannot be seen as universally effective. In some respects, thses relationships mirror many of the previous discussions around the notion of "excellence" (Hitt and Ireland, 1987; Pascale and Athos, 1981; Peters and Waterman, 1982) and it is clear that organisations can struggle to maintain that level of performance (Pascale, 1990). The loss of MH370 also shows how apparently effective organisations are prone to crises because they make assumptions around their abilities to manage under certain (often extreme) environmental conditions (Pascale, 1990; Pauchant and Mitroff, 1992; Vaughan, 1990, 1999). These assumptions, along with the core beliefs and values of managers, have been seen to play a significant role in the generation of organisational cultures that have a propensity towards crisis (Mitroff et al., 1989). Another perspective relating to the relationships between effectiveness and crisis can be seen to exist once a crisis is triggered. An organisation's crisis or contingency planning processes also need to be effective and must be set against the spectrum of demands that the organisation may need to respond to. This creates two significant challenges for managers. First, it can be framed in terms of their abilities to control the incubation of the crisis before it occurs and respond effectively to its task demands as it emerges. Second, a crisis generates a requirement to communicate with the range of stakeholders that are affected by the event and to do so in a situation that is typified by a high level of emotional pressure. The result of such a crisis is the generation of a series of challenges for management that will challenge their capabilities. These include the limitations of certain key assumptions around control, the management of information flows (both known and unknowns),

and the impact that these issues have for the generation of emergent conditions. Unless organisations prepare to deal with these challenges as part of their preparation for crisis management then they are unlikely to be able to maintain their effectiveness under such challenging conditions.

Figure 3 attempts to illustrate how organisational ineffectiveness at multiple levels within a crisis allows the event to spiral out from an initially controlled state (in this case, at the point at which the aircraft disappears) into a state of crisis. Of course, it is highly likely that there will be evidence of organisational ineffectiveness in the period prior to the aircraft's disappearance, but that can only be speculation at this point in time. There are some obvious vulnerabilities that are self-evident, however. These include the ability to disable a transponder on the flight deck, the reliance on the physical recovery of data from the flight data recorders (rather than constantly streaming the data throughout the flight), and the apparent inability of ground-based radar to track an aircraft in flight.

The disappearance of MH370 triggered the onset of a complex, multi-layered crisis that involved a number of national governments, search teams, and organisations. The notion of a triggering process is often seen as a characteristic of a crisis (Smith, 1990, 1995; Turner, 1976, 1978) as it highlights the transition from a stable (or ordered) state to one in which the complexity of the situation moves the organisation into a more complex environment. It is this move away from an organisation's designed for state – its "normal" operating conditions – that can be seen as an important element of the onset of a crisis. If the organisation is incapable of dealing with these initial shifts in task demands then it is likely that the actions taken will propel the organisation further into a state of crisis. Invariably, these early stages are typified by information asymmetries – where the demand for information and clarity around causality often
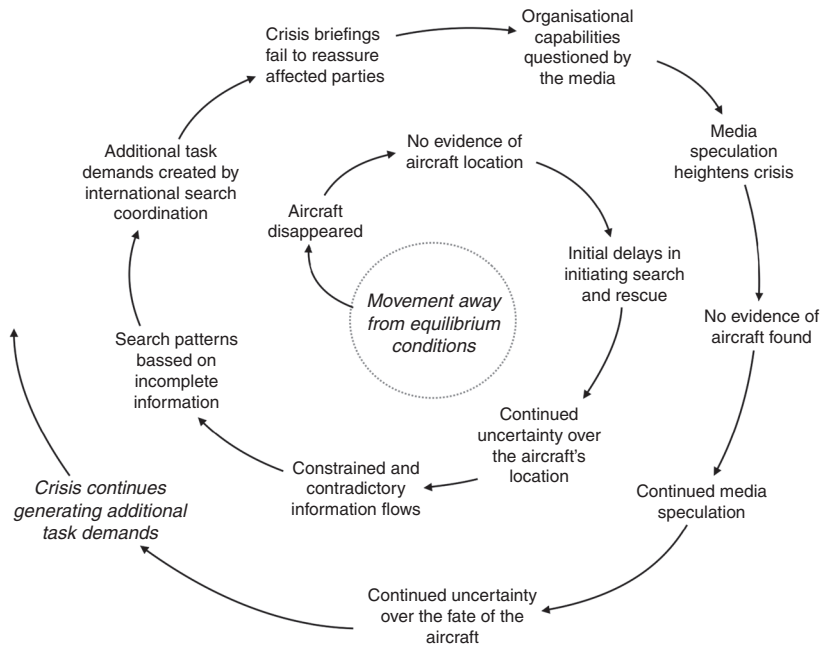

Figure 3.
MH370 as a spiral away from equilibrium

exceeds the abilities of the organisation to satisfy that demand. The presence of multiple stakeholders in the event compounds this problem as there will be a range of demands for information provision and different "standards" by which the performance of the organisation in providing that information will be judged. Decision makers will have to deal with this problem of information shortfall whilst, at the same time, attempting to provide clarity of information to prevent the event from spiralling further out of control. These were characteristics of the early stages surrounding the disappearance of MH370.

MH370 – implications for organisational effectiveness
The loss of MH370, highlighted some of the challenges that can face organisations in dealing with a complex, multi-dimensional crisis that involves multiple stakeholders. The lack of information, and the potential scale of the investigation have proved to be a significant challenge for the multinational crisis and investigation teams involved in the search for the aircraft (Branigan, 2014b; Branigan and Hodal, 2014b; Harlan and Denyer, 2014). In part, the lack of information led to the development of multiple narratives around the causal factors surrounding the disappearance of the aircraft (Branigan, 2014c; Branigan and Kaiman, 2014; Denyer and Harlan, 2014). These "narratives" evolved in the early stages of the crisis as the authorities were unable to find any trace of the aircraft or wreckage that could be attributed to it. Early reports suggested that a number of alleged eye witness claimed that the aircraft had been seen in flames falling from the sky (Branigan and Hodal, 2014a) whereas other accounts speculated that the aircraft had deviated from its flight path and headed back over the Malaysian Peninsula (Branigan and Kaiman, 2014; Harlan and Denyer, 2014). As the information regarding the track taken by the aircraft came to light, there were other theories about where the aircraft may have crashed (Lagan, 2014c; Lagan and Lewis, 2014b). Other speculation around causality concerned the alleged potential for cracks in the aircraft hull of the aircraft type, which had been raised by the US Federal Aviation Authority (Bremner and Lewis, 2014) as well as suggestions that batteries being carried by the aircraft may have caused a fire (Lagan and Lewis, 2014b). By the 15th March, it emerged that there seemed to be compelling evidence of direct human action in turning off the aircraft's communications systems leading to speculation of a terrorist attack (Doward *et al.*, 2014; Hookham and Sheridan, 2014; Lewis, 2014a, b; Pank and Bremner, 2014). In response, the Minister of Transport commented that:

> It could have been done intentionally, it could be done under duress, it could have been done because of an explosion, that's why I don't want to go into the realm of speculation. We are looking at all the possibilities (Hishammuddon Hussein cited in, Hodal *et al.*, 2014a, p. 3).

The result was a further widening of the search area as the authorities sought to make sense of the incident (Hodal *et al.*, 2014b). By April, the search area had been shifted to the Southern Ocean and an area in the Indian Ocean closer to Australia following the detection of pings believed to be from the aircraft's black boxes (Associated Press, 2014; Hodal *et al.*, 2014b; Lagan, 2014b; BBC News Asia, 2014c). This search failed to reveal any wreckage of the aircraft. By the end of June, information was emerging that pointed, once again, to the alleged intentional actions of people on the flight deck (Pearlman, 2014) although the pilots were believed to have been unconscious for hours (Lagan, 2014a) and that the passengers were probably suffocated before the aircraft ran out of fuel and crashed (Reuters, 2014).

The loss of MH370 illustrated one of the fundamental elements of a crisis namely the lack of information and the speculation that invariably takes place in the media about the causes of the event resulting in an escalation of the crisis (Frewer *et al.*, 2002; Hill, 2001; Yannopoulou *et al.*, 2010), in this case the speculation ranged over both causality and the location of the aircraft (Farhi, 2014; Halsey, 2014; Harlan and Wan, 2014). There was a considerable amount of speculation across the various strands of the media and a number of conspiracy theories emerged, especially on online web sites. At the root of this problem was the lack of information provided by the authorities, leading one media commentator from CNN to observe that:

[…] the bottom line is the authorities and those who are supposed to know simply do not (Chris Cuomo cited in Farhi, 2014, p. C2).

In the absence of information speculation invariably fills the void and provides an illustration of how ineffective processes around information management in organisations can, under crisis conditions, compound the problems that the organisation faces. In this particular case, the media speculation generates additional pressure on the airline and the government to refute some of the unhelpful speculation whilst trying to provide information that is useful to media commentators.

The challenges of this incident highlight the task difficulties that face those teams who are charged with managing such crises. These include: the difficulties around information flows, the uncertainty inherent in decision making as a consequence, the stress generated by the external pressures on those teams handling the event, and the challenges of intergroup communication. Against this background, it is possible to frame the notion of organisational effectiveness as symptomatic of the "designed for state" of the organisations where the core organisational processes are in a symbiotic relationship with the task demands and capabilities (see, e.g. Hodge and Coronado, 2007; Tsoukas, 1999; Tsoukas and Dooley, 2011). In such a context, the capabilities of the organisation will match the task demands imposed upon it but will also be able to absorb fluctuations in those task demands. Against that background, one might argue that effective organisations should have a degree of slack built into their capabilities that would allow them to absorb perturbations on the system and do so in such a way that there are no longer term impacts on performance. However, the provision of that capability requires additional resource and it will impact on the short-term financial efficiencies of the organisation. Too much redundancy and the organisation is inefficient and too little and it is ineffective within the context of its task demands at particular points in space and time. Thus, the ability to deal with such surges in task demands are key to determining organisational effectiveness over the longer term. The focus on lean organisations seeks to balance a line between this efficiency and effectiveness relationship. However, by eroding slack within an organisation we risk making it more brittle to the perturbations that it could face and the processes around "just in time" can easily transition to a state where they become "just too late". It is this transitional state that often marks the move of an organisation into conditions that are described as a crisis.

Conclusions
This paper has sought to set out a framework for considering the relationships between effectiveness and crisis. The relationships between these two sets

of symbiotic processes are in need of further research, especially around the central role that human resources play across all three phases of a crisis. A crisis, it has been argued, can be seen to occur when an organisation moves from a relatively ordered or complicated task environment into a chaotic one, where it does not have the dynamic capabilities to cope with the task demands of the event. As such, the event exceeds, or comes close to exceeding, the organisation's abilities to cope. In the case of MH370, Malaysia Airlines moved from an ordered state – where the aircraft was believed to be flying normally to its destination – to a complex state when it disappeared from radar and failed to arrive in Beijing. Very quickly the event moved into a chaotic state when it became apparent that no one knew where the aircraft was. It soon became clear that little was known about the flight of MH370 once it left the control of Malaysian ATC. Media speculation about the cause of the disappearance became rife, with theories speculating that it was catastrophic failure, through pilot suicide, to terrorist hijacking. Whilst each of these scenarios was "plausible", there was little tangible evidence in the early stages of the event to support any scenario in a concrete manner. Again, this is not uncommon in crises where the immediate aftermath of the event is fraught with uncertainty. Even by the 30th June, over 100 days after the disappearance, there was still no proof of what had happened, despite numerous suggestions within the media.

What this particular crisis illustrates is the manner in which such events progress through distinct but interlinked stages and it is possible to argue that a crisis emerges as a function of the failure of the organisations involved to cope with the very different environmental states that emerge. The loss of MH370 highlights the manner in which organisational effectiveness can quickly degenerate into a crisis state. At the point at which the aircraft disappeared, it propelled Malaysia Airlines into a state of crisis where its environment moved from a relatively ordered state into one that was increasingly chaotic. The crisis spiraled outwards to include the Malaysian Government and also extended in space and time as the search area widened. At the time of writing, the search for the aircraft was expected to take an additional year and the recovery of the remains of the aircraft, assuming that it was even possible, extended beyond that timeframe.

The paper has explored the relationships between the various stages of a crisis and the factors that contribute to a transition into crisis. It has highlighted the symbiotic relationships that exist between crisis and effectiveness where an erosion of the latter, at different points in space and time, can lead to the emergence of the former. Crises, it has been argued, arise when organisations fail to respond to the task demands generated by shifts in the environment and these new conditions generate emergent conditions that move the organisation from its designed for state, thereby eroding the controls that are in place within the organisation. However, the relationships between effectiveness and crisis are themselves complicated and further work is needed to ensure that the relationships are explored in more detail. There are several areas of research that are worthy of further attention within this journal. First, the processes around which crises are incubated within organisations that are deemed to be effective remains an area where there is still considerable debate. The tensions between high-reliability theory and natural accident theory is one area where this debate is still active (Perrow, 2009; Shrivastava *et al.*, 2009a, b) and the relationships between these theoretical perspectives and the processes around organisational

effectiveness are also in need of additional research. Second, the range of boundary-spanning processes that exist at the interfaces between crisis, complex socio-technical systems, and the environment and their contribution to effectiveness are also in need of additional research. In particular, the different levels of granularity at which these processes occur and the manner in which they can interact to erode effectiveness at key points within the system. The conditions that allow latent and active errors to expose vulnerabilities and trigger these boundary-spanning processes in the process, is an area that is also poorly understood when it comes to organisational effectiveness. Third, the processes around effectiveness and the performance of crisis management teams, again at different levels within organisational structures, is an area of work that has not had the attention within the management literature that it deserves. The question of what effectiveness means in each of the phases of a crisis and at various points in space and time is an important issue in the discussion of organisational effectiveness and the processes by which it can be eroded. Finally, the issue of effectiveness within the crisis of legitimation phase remains an area that is under researched, particularly in terms of the ways that effectiveness can be restored to those organisations whose reputations have been damaged. The relationships between organisational effectiveness and crisis is a fertile area for research and one in which our lack of understanding of the interrelationships that exist will contribute to the erosion of effectiveness in a vicious circle. As such, is an area that should be central to the work of this journal. If this paper can stimulate debate in that area then it will have achieved its aim.

Notes

1. This literature can be found in a diverse body of work that transcends such subjects as ergonomics, human factors, and applied psychology, as well as science and technology studies and the management of technological change.

2. The Hillsborough disaster was subject to a formal inquiry by Lord Justice Taylor in 1989 and there have been several subsequent investigations that have sought to refute some of the early findings.

3. The transcript of the cockpit exchanges with Malaysian air traffic control can be found at: www.bbc.co.uk/news/special/2014/newsspec_7440/transcript.pdf

4. Despite an extensive search for wreckage, no firm evidence of the plane had been found by the 31 May 2014.

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