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Of Latent Errors and Organizational Crisis: Types, Conditions, and Implications

Dr. Sunia Fukofuka
Program Director, Online MBA and Distance Learning Center
Business Department, Adventist International Institute of Advanced Studies, Cavite, Philippines

Abstract:
Analysis of major organizational crisis incidents—regardless of the nature of the industries in which it occurs—has consistently found that latent errors play a massive role in the events leading up to the actual incident. Latent errors are deviations or the existence of gaps between what is and what should be without no immediate adverse consequences. Though well known to practitioners, its persistence even in today's organization is somewhat perplexing. The focus of this paper is to define latent errors, identify types of latent errors, conditions whereby it becomes rampant in the system, and its role in organizational crisis in the hope that practitioners can minimize its occurrences thereby lengthening the dormancy period. This was achieved through the use of grounded theory approach on the collapse of Barings Bank in Singapore (1995), the sinking of the MV Princess Ashika (2009) in Tonga, and other disasters found in the literature.

Keywords*: Latent errors, organizational crisis, crisis management, grounded theory, Barings bank, princess Ashika.*

1. Introduction

Turner and Pidgeon (1997) in their analysis of 84 crisis incidents that occurred in the United Kingdom made some serious allegations about organizational disasters: that organizational disasters are man-made; that organizational disasters are not chance events; that organizational disasters are not acts of God; and that organizational disasters are a result of failures in foresight. In fact, findings in many crisis incidents suggests that majority of the organizational disasters of the cumulative type (see Hwang and Lichtenthal (2000) for a discussion in abrupt and cumulative crisis type) should not have occurred but arose due to failures in foresight (see Choo, 2008). Therefore, one of the questions that is asked in any formal inquiry to a crisis incident (of the cumulative kind) is why wasn't the incident dealt with when it was still in its infancy and not at its critical stage? It is naïve to think that there can be one single answer to this question because causes of organizational problems are always multifaceted. However, one of the major reasons why organization foresight fails is due to the rampancy of latent errors in the system.

Latent errors as defined by Ramanujam and Goodman (2003) are uncorrected deviations in procedures, policies, normative standards, and virtues that have no direct adverse consequences. In their conceptualization, they emphasized that the latent errors exist when organizations deviates from organizational expectations without observable direct consequences. This paper explores the idea that it is the rampancy of latent errors in the system that gives rise to failure in the organization's foresight. As such the purpose of this study is to explain the role that latent errors play in organizational disasters in terms of foresight and to explain its persistence in today's organizations. Specifically, this study answered the following questions:

i. What are the different types of latent errors?
ii. What are the conditions that give births to latent errors?
iii. What role do latent errors play in organizational crisis?
iv. Why do latent errors persist?
v. How do can we counter latent errors?

In relation to the fourth and fifth question, latent errors are not new in the literature (see Basel Committee, 1998; Vaughan, 1999; Kohn, Corrigan, & Donaldson, 2000). However, despite the practitioners and academicians awareness of latent errors, it still persists in today's organizations. As such an understanding of why it persists and how to counter it would be critical to our knowledge of and management of latent errors in the organization.

2. Methodology

The objectives of the study were achieved by employing the grounded theory method. The grounded theory method is the most popular among qualitative designs used worldwide (Birks & Mills, 2011; Bryant & Charmaz, 2007) and its purpose is to "discover theory from data" (Glaser & Strauss, 1967) through the use of constant comparison and theoretical sampling (Suddaby, 2007). The Glaserian approach was used in this study because of its flexibility and its emphasis on the classic version of grounded theory (see Hekkala, Urquhart, & Heiskanen, 2009). Urquhart's (2007) guidelines were used in this study and the data was collected from the

literature as well as official inquiries into the following incidents: the sinking of the MV Princess Ashika (2009) and the Barings Bank insolvency (1995). Theoretical memos were also collected and used in formulating propositions discussed at the end of this paper.

2.1. The Sinking of M.V. Princess Ashika (2009)

The M.V. Princess Ashika sank on August 5, 2009 in the Kingdom of Tonga and claimed 74 lives costing the government $2 million in victim payout followed by bad publicity giving rise to the impeachment of the Minister of Transport and other high officials of the Shipping Corporation of Polynesia. The M.V. Princess Ashika made four trips before its fateful travel on August 5 and in each of those four trips, passengers, crew members, and even the marine inspectors at the wharf had consistently complained and raised their concerns with the authority but those concerns were not followed. Further, in all trips around the islands of Tonga, the ship was overloaded for it sailed with its load line submerged. This concern was raised with those relating to the conditions of the ship but again it was ignored. In the findings of the Royal Commission of Inquiry into the matter asserted, "it was scandalous that such a maritime disaster could ever have been allowed to occur. It was the result of systemic and individual failures" (p. iv).

2.2. The Collapse of the Barings Bank (1995)

The Barings Bank was the oldest merchant bank in London and its main business activity was corporate financing. One of its subsidiary—Barings Futures Singapore (BFS)—managed by Nick Leeson and his speculation in options caused Barings Bank 827 million pounds in margin calls. Barings Bank could not meet SIMEX margin's calls even though the Bank of England tried to save it but the amount was too much. The findings of the Inquiry concluded that "Barings collapse was due to unauthorized and ultimately catastrophic activities of, it appears one individual (Leeson) that went undetected as consequence of a failure of management and other internal controls of the most basic kind." Leeson's activities went undetected for so long because he was the general manager, the front office manager, and the back office manager of BFS and he hid his activities by creating an account 88888 to cover his speculation. In 1992 and 1994, the internal auditing body recommended that BFS should implement the separation of duties but this was not done at all. Even reconciliations of the most basic kind was not done and when they called up to check—whether it is at the front office, the back office, or the officer in charge, they were talking to the same person, Nick Leeson. On February 25, 1995, Barings could not meet the margin calls and was subsequently sold to Dutch Insurance and Banking Group.

3. Results and Discussion

The results of this study will be discussed by research question. The result will be analyzed by displaying data from both crisis incidents (The M.V. Princess Ashika and Barings Bank) and from the literature in order to corroborate each other. Further, this section will end with a theoretical model and a set of propositions developed from the findings.

3.1. R1: What Are the Different Types of Latent Errors?

Latent errors are defined as deviations from a set of expectations and it stands to reason that when deviations exist, gaps come into beings. A gap analysis is not new (see Blomqvist, Kylaheiko, & Virolainen, 2002; Juan, Ou-Yang, 2004) and its purpose is to compare what is to what should be. There were many different gaps found in the datasets but four were found that was common to both incidents and common in the literature. It will be discussed below.

3.1.1. Deviation 1: Gap between Perception and Practice

Gap between perception and practice refers to the difference between the perception and the decisions made.

1. M.V. Princess Ashika: The Prime Minister in his affidavit claimed that "he has always been mindful of the need to maintain a safe and reliable ferry service" in the Kingdom. This perception is at odds with his practice of allowing unseaworthy ships to sail, of allowing the MV Princess Ashika to sail—and even after the disaster—of disregarding the reservations and superseding the direct order of the General Manager of Marine and Ports to refuse the MV Pulupaki entrance to the ports of Nuku'alofa for safety reasons. These and many other instances both by the Prime Minister and others who hold high offices both within the government and SCP shows a vast gap between perception and practice.
2. Barings Bank: Ron Baker and Mary Walz (Global Head of Equity Financial Products, BIB; Director, BB &Co) thought that the large profits arose from the competitive advantage that BFS had and its inter-office communications and its large client order flow because they believed that Leeson's activities were risk free. Unfortunately for Barings, their perception and subsequent actions suggests a lack of understanding of the business and the risks inherent in combining agency (when BFS acted on behalf of clients) and proprietary (when BFS acted on behalf of itself instead of clients) trading.
3. Literature Data: The 9/11 terrorist attacks was another case whereby the gap between perception and practice is clear. As early as 1998, the intelligence agency already knew that there was going to be a massive terrorist strike on USA territory. In fact, as early as 2001, they already captured terrorist plans with map details of the airplanes used. Unfortunately, they never thought that the attack would be in the USA. They perceived that any attack would be on USA soil in foreign countries. As such they acted by increasing security in foreign embassies rather than looking within (see Choo, 2008).

3.1.2. Deviation 2: Gap between Legal Stipulations and Practice

Gap between legal stipulations and practice refers to the difference between what the laws require and the actual practice.

1. M.V. Princess Ashika: The law stipulates that no person shall take or send or attempt to take or send an unseaworthy ship to sea. It is clearly evident in the data that the Minister of Transport endeavored the purchase of a ship that was clearly unseaworthy and even

in finding out that the ship was unseaworthy still operated it. The gap between the legal stipulations and the practice in the offices of the SCP as well as within the government is wide indeed. Another instance is when the director of Marines and Ports offered a provisional safety certificate for the MV Princess Ashika when the law does not have a provisional safety certificate (a ship has to be either safe or unsafe) and when he signed for this document while stipulating that his own immediate family will not be allowed to board the ship in direct contravention of the above law.

2. Barings Bank: One of the major failures of Barings was its failure to abide by legal stipulations. All players in the exchange cannot transact beyond a certain limit that is based on their available capital. However, it was a Barings practice that they would overcome this regulatory constraint by involving another BSL subsidiary whose transacting limits has not been reached allowing them to continue transacting beyond the limits set by the law.
3. Literature Data: The Bhopal incident in India is the worst of its kind killing 3000 immediately and injuring more than 300,000. The government spent USD$30 million in relief and damage compensation amounted to USD$350 million to USD$4 billion. In the subsequent inquiry, it was found that regulated safety training was not complied with, and the required number of operators and supervisors were also not complied with due to costing concerns (see Shrivastava, Mitroff, Miller, & Miglani, 2006).

3.1.3. Gap between Knowledge and Practice

Gap between knowledge and practice refers to the difference between the knowledge of what needs to be done and what was actually done.

1. M.V. Princess Ashika: The Prime Minister was aware of what needs to be done but did not see to it (as in report to be tabled in cabinet amidst other things) that it was done. There are also many instances where this gap can be illustrated—the captain of the ship travelling while knowing that the load line is being submerged (see ESR 53,54); the recommending of a ship by SCP board and its company secretary without conducting due diligence (see ESR p. 219); the allowing of the MV Princess Ashika to sail when it was clearly unsafe.
2. Barings Bank: It is a fundamental principle in business—risk and profit (loss) are positively related. As in, if the risks were high than the profits (loss) achieved would also be high. But if the risks were low or non-existent then the profits (loss) achieved would also be low. As such, how the top managers of Barings could fail to ignore that massive profits can come from low or non existent risks in 'switching' is a clear illustration of a disconnect between knowledge and practice.
3. Literature Data: In the Mann Gulch fire, 19 firefighters were dropped off in the Mann Gulch area to fight a forest fire. Unfortunately, the fire spread too quickly and they knew they were going to be trapped. The foreman (leader) told them to drop their tools and lit a fire where they were standing. The foreman did just that and then he lied down in the midst of his own fire. The other crewmembers did not trust the foreman's guidance and tried running to escape the surrounding fire. 13 of the firefighters died that day. When trapped in a forest fire, one of the ways of dealing with it is lighting a fire so that the oncoming fire does not have any vegetation to burn but one that you can control. The foreman recognized this and those who followed him were saved but those who did not died in the fire(see Weick, 2006).This is yet another illustration of the gap between knowledge and practice.

3.1.4. Gap between Expertise and Position

Gap between expertise and position refers to a person's expertise and the position he holds.

1. M.V. Princess Ashika: The Minister of Transport does not have either technical knowledge nor marine experience that would have assisted him in his extensive involvement of the purchase of the MV Princess Ashika and especially when he failed to consult those within the ministry who do know or listened when those services were offered. The second refers to Mr. Jonesse who as the CEO of SCP did not have any technical knowledge or marine experience. This inexperience came to the fore when he went on a ship buying expedition and recommended a ship that was clearly unseaworthy. This also was exposed in the testimony of Lord Dalgety QC when according to common practice within Shipping Companies, there should be a "marine superintendent" especially when the CEO is not marine/ship technically fluent. The appointment of Mr. Jonesse to the post did not meet critical criteria in accordance with the job advertisement of marine experience and thus the marine superintendent was a must.
2. Barings Bank: When Ron Baker became head of Financial Products Group, BIB; Director, BB&Co and BSL, he lacked both the knowledge and the expertise to understand equity derivatives especially trading in futures and/or options. His area of expertise is in corporate finance and it is there where his experience is extensive not derivatives. This was the area that Nick Leeson was dealing in and Ron Baker was his supervisor.

3.2. R2: What Are the Conditions That Give Rise to Latent Errors?

There were two discovered in the dataset and these two are the primary values and the accelerators of latent errors. These two will be discussed accordingly.

3.2.1. Primary Values

Primary values are those values that determine management actions. There were two primary values shown in the dataset: safety not paramount and financial interests paramount. These two will be explained together because safety is usually compromised due to financial interests.

1. M.V. Princess Ashika: The only income-generating vehicle of the Shipping Corporation of Polynesia was the M.V. Princess Ashika. As such, even if they wanted to dock the ferry for maintenance, they could not because the money required to fix the ship in the first place cannot be obtained since the ship is not operational. Further, since it was the only Ferry that was operating at the time and due

to the many religious events concentrated during this time—regardless of safety concerns, the public pressure on the government was high that the ship must sail to get people and their commerce to where they need to be. Hence safety was a non-issue

2. Barings Bank: In 1992, an internal audit was done on Barings Futures Singapore and there were several recommendations including implementation of basic internal controls. However, of the recommendations that were given in 1992, the recommendation that was attended to was tracking of top remuneration expenses against pre-remuneration profits in order to pay the top or directors for top individual performance. The recommendations for implementation of internal controls were ignored.
3. Literature Data: The Wilberg Mine Fire occurred when the Emery Mining Corporation decided to set a 24-hour coal production. In order to do so, they stormed—the process of "acceleration in the pace of activity at the end of a planning period that occurs as a response to an arbitrary, time-dependent incentive system" (Radell, 2006, p. 284). Those who participate in a storming situation know that the stress to the system cannot be sustained indefinitely however it. Due to their need to set a world record and obtain bonuses if they did, they ignored safety regulations and 27 Emery employees died that day.

3.2.2. Accelerators of Latent Errors

Accelerators of latent errors are different arrangements within the systems that not only allow latent errors to exist but also *quicken* its growth in the system. These accelerators are defined as follows:

- Disabled Check and Balances Mechanisms: When the system fails to learn and the feedback mechanism is disabled, latent errors become rapidly rampant in the system.

1. M.V. Princess Ashika: In the purchase of the M.V. Princess Ashika, the procedure as stipulated by law require that all governmental transactions of significant amounts must be reviewed by the procurement committee to ensure that government interests are protected. The Minister of Transport sent all the documents to the Cabinet and the Cabinet made a decision to buy without following its proper procedures. As such, the procurement committee was disabled and was not able to perform due diligence. Another instance of this can be seen in that all checks for government procurement must be signed by the Minister of the department who the funding is for and the Secretary for the Minister of Finance. In this case, the Minister of Transport crossed out the signatory portion of the Secretary for the Minister of Finance and wrote secretary of the Ministry of Transport and they both signed to obtain the funding for the procurement of the MV Princess Ashika.
2. Barings Bank: in both audits, internal and external, recommendations were similar, that reconciliations be done, that separation of duties be implemented, and yet none were done. In a cash industry such as Barings Banks, reconciliation and separation of duties are key check and balances mechanisms to help ensure latent errors do not exist in the system.

- Constraints: Constraints are restrictions placed on management due to resource scarcity. Two were found in the datasets that was common to both datasets.

1. Time constraint**:** Time constraints refer to time schedules that management are pressured to meet. In the Princess Ashika case, the ferry service in Tonga is extremely critical because it provides the major vehicle for transferring people and cargo between islands. Japan offered that they would provide a ferry by 2008. However, due to their own issues, their promise was not fulfilled. Hence Tonga was in dire need of a ferry. This need becomes critical especially during the time for major Christian denominational festivities. Hence the Princess Ashika was procured and allowed to sail because of time limits placed on management to act quickly for the need of the general public is high.
2. Expertise Constraints**:** Expertise constraints refer to the constraints on management when filling up positions simply because expertise is lacking those areas. In the case of the Princess Ashika, the Minister of Transport has neither experience nor qualifications in matters relating to shipping and yet oversaw the due diligence on the ferry disregarding concerns raised by ship inspectors of the ministry. Further, the CEO for the Shipping Corporation of Polynesia is not fluent with shipping technicalities. By law, he can be the CEO if there is a technical advisor for the company to advise him. At the time of the sinking, the CEO did not have a technical advisor. In the case of Barings, the highest turnover was in the reconciliation department. Expertise in this area was difficult to attract and retain.

It is important to note that constraints and primary values provide the backdrop for which latent errors become rampant in the system. Critical to this discussion is the rationale that managers use to justify deviations. Where the rationale for deviations is based on constraints and the primary values of the manager upholds the bottom line over safety constraints, latent errors will exist in the system. This will be explained further in the following section under the reinforcing characteristic of latent errors.

3.3. R3: What Role Do Latent Errors Play in Organizational Crisis?

As was argued earlier, latent error distorts the organization's foresight and foresight failure is the cause of cumulative crisis (Choo, 2008; Turner & Pidgeon, 1997). Latent errors distort foresight through three ways: the absence of immediate consequences; its reinforcing characteristic; and its magnitude, frequency, and variety. All three will be explained in the following paragraphs.

Latent errors can distort foresight through the absence of immediate consequences because it can generate the false impression that the system can survive continual deviations. The cases of ferries traveling in the islands of the Kingdom of Tonga that was not fit for its purpose or deemed to be seaworthy is not new. In fact immediately after the MV Princess Ashika sank, the Prime Minister deemed it necessary to allow the MV Pulupaki to be towed back to the sea to sail to the rescue of an oil tanker that was closer to the shores of Fiji than it was to Tonga. The MV Pulupaki was towed to land because it was considered unseaworthy and unfit for travel. Another example of deviations without immediate consequences can be seen in the MV Princess Ashika sailing with its load line submerged in

its first four trips. In its fifth trip, the load line was still submerged and contributed to the speed with which it sunk because it was loaded beyond its safety capacity. The absence of immediate consequences gives the false impression that the system can handle the stress and therefore managers can be lulled into a false safety impression. Hence, constant allowance of unfit ferries for travel and traveling with the load line submerged gave the false impression that nothing adverse could happen. Radell (1992) argued that when deviations occur—such as in storming—and it works well without any observable adverse effect, managers believe that the risk of failure is minimized with each success. This is a process that Starbuck and Milliken calls"finetuning the odds until something breaks" (as cited in Radell, 1992, p. 285). Hence the organization's foresight is blunted due to the misplaced confidence that the system can handle the stress of repeated deviations. This can be seen in the case of the Wilberg mine fire, Three Mile Island, Chernobyl and the Challenger (see Radell (1992) for further discussion).

Latent errors can distort foresight through its reinforcing characteristics. Unfortunately, when management values uphold the bottom line by compromising safety considerations coupled with constraints as a rationale, it produce a reinforcing effect on deviation. When the Minister of Transport justified the buying of a ferry from Fiji because of the time constraints he was placed under, he ignored safety concerns. The ferry was bought from Fiji for three reasons: that the trip between Fiji and Tonga will be shorter, the currency of Tonga and Fiji are about the same (as opposed to Australia or New Zealand), and the ferry from Fiji was cheaper than those around. In its first attempt to travel from Fiji to Tonga, the ferry could not make it because the bow was bent due to the open waters of the Pacific Ocean. It was in such a bad condition that it had to return back to Fiji for repairs. Even with this as a testament to the condition of the ferry, the Minister of Transport together with the CEO did not consider safety concerns. They still pushed ahead to meet their schedule as well as their bottom line. There were ferries that could have been bought from Australia or New Zealand that were in far better condition and would meet safety considerations. But as has been stated at the outset, latent errors have reinforcing characteristics.

Another way latent errors distort foresight is when you consider its magnitude, frequency, and variety (see Ramanujam & Goodman, 2003). Where latent errors are allowed to exist because of disabled mechanisms, its magnitude, frequency, and variety increases. When one considers the deviations in the M.V. Princess Ashika, it was unbelievable that the ship was allowed to sail. From the Prime Minister, Cabinet, to the Legislative Assembly; from the Minister of Transport, Secretary of Transport, Ports Authority Manager, to the Captain and Crew of the Princess Ashika—all deviated knowingly from established procedures and protocols. In fact when the inquiry was completed, the commission concluded that the sinking of the Princess Ashika was the result of systemic and individual failures.

In terms of the Barings Bank, Leeson was allowed to deviate from established protocols to the point where his supervisors in their own statement stated that if they wanted to talk to the back office, front office, or the person in charge, they were talking to the same person. The reason is because when Leeson was the general manager for Barings Futures Singapore, he was also the manager for the front office, the manager for the back office. Where mechanisms are disabled, the latent errors' magnitude, frequency, and variety increases. When latent errors increase, it hinders organization foresight.

3.4. R4: Why Do Latent Errors Persist?

There are two reasons discussed in this paper: Information impairments due to epistemic blind spots (Choo, 2008); and safety is not management's most important consideration (Perrow, 1994). The first of the above reasons relates to the system whereby management in their deviations cannot foresee its impact on the whole system. The other reasons relate to the primary values that management holds.

3.4.1. Epistemic blind spots

Choo (2008) asserted that "when a stream of warning signals is not heeded because the information does not fit existing beliefs, or because there is no frame of reference for the warnings to be recognized", epistemic blind spots exists (p. 35). It can be argued that latent errors persist because the manager is blinded to the impact of the deviation to the system as a whole. As such, any concerns about the deviation will not be heeded at all due to managerial existing beliefs or to the non existence of a frame of reference as was pointed out by Choo (2008). The Minister of Transport was challenged about the seaworthiness of the MV Princess Ashika on several occasions by members of the legislative assembly, by the Prime Minister in writing, by the Cabinet, by inspectors of the Ministry, by the Governor General and yet these warnings were not heeded. The captain of the Princess Ashika were challenged by the port's authority manager, crewmembers, and some of the passengers. Yet these warnings were not heeded. Perhaps, the thought that the ship could actually sink never occurred to them. And even if it did, it will not cause such loss of life. When it finally did happen, roughly 1% Tonga's population died on that ship. There was no frame of reference that those in managerial positions related to the event could make them come to that conclusion.

In terms of Barings Bank, both the internal and external audit had similar recommendations: separate Leeson's functions and perform reconciliations. Perhaps being the oldest commercial bank in the UK and having brand equity of renown made them blind to the fact that they could actually go bankrupt. Leeson in his deviations did not consider that the results of his actions would actually bankrupt one of the oldest and strongest banks of the UK. Rumors of Leeson's activities and the size of the exposure circulated the financial circles in December of 2004 (Ramanujam & Goodman, 2003). In fact, SIMEX wrote Barings London about the activities of Barings Futures Singapore. Barings did not respond quickly enough. By the time they did, they could not recover from the risk they were exposed to. It was not in their frame of reference that the combine might of the Reserve Bank of England and Barings could not cover SIMEX's margin call.

The dangers of epistemic blind spot are actually more pronounced today than decades past. An organization has "complex interactions…where components have multiple functions and, therefore may fail in more directions at once" (Rijpma, 1997). Rijpma

(1997) discussions of complexity and tight-coupling actually emphasizes that systems today has many connections such that a deviation by managers in one part of the system could have a profound impact on other parts of the system. For instance, the decision of the previous managers of the Princess Ashika in Fiji to sell the ship to the Kingdom of Tonga while knowing that its condition was not seaworthy given the repeated reprimands and strict regulations given it by the Fiji Marine Board even requiring it to travel not more than 8 kilometers and that only be in closed waters points to the fact that the ship was in a terrible state. This coupled with the Minister of Transport's refusal to follow protocol and do due diligence on the ship resulted in the disaster. Thus the consequences of latent errors when seen holistically are difficult to pin down given that information access is limited to organizational levels. This means that latent errors persist because each manager may be aware of what is happening within in his sphere of influence but has no awareness of what his decision or actions mean to others within the system.

3.4.2. Safety is not a Managerial Consideration

Mechanisms are put in place to safeguard organizational interests and in many ways, its stakeholders. Managerial deviations especially at the cost of safety should be understood clearly for if managers do not value the rationale for having the mechanisms in place, then latent errors would become the norm and not the exception in the organization. Perrow (1994) argues that regardless of organizational type, a crisis incident is inevitable because leaders do not put safety first. In his argument, Perrow discusses the following, "the harm, the consequences are not evenly distributed; the latency period may be longer than any decision maker's career; few managers are punished for not putting safety first even after an accident but will quickly be punished for not putting profits, market share, or prestige first…Above all, it is hard to have a catastrophe, so the risk to any one set of managers or elites is small; while it is substantial for society as a while" (p. 23). In the case of the Princess Ashika, the ship was sold from the original owners in Japan to those in Fiji in the 1980s. The reason being, Japan would not allow the ship to sail in its waters. In Fiji, it changed hands three times and it was pronounced unfit and unseaworthy by the Marine Board. Yet the managers in Fiji saw fit to sell the ship to Tonga. Hence when the sinking occurs, the 'latency period' was finally over with the fifth owner of the ship, the Shipping Corporation of Polynesia who was a government owned enterprise. In the case of Barings, Nick Leeson was the cause of the downfall of Barings. He has written a book about his episodes and it has been changed into a Hollywood movie, the rogue trader. He even sold his trading jacket after he was released from prison and it brought him 21,000 pounds. In other words, the consequences of the crisis incident are not distributed equally. If managers compromise safety considerations because of bottom line considerations among others, latent errors will continue to exist in the workplace.

3.5. Research Question 5: How Do Can We Counter Latent Errors?

From the dataset and literature, there are two ways in which latent errors can be countered. First is through the structural arrangements in the organization such that feedback mechanisms are engineered into the structure and also enabled. Second is through the culture of the organization whereby organizational actors are enabled to work and not suppressed. Both will be discussed in the following sections.

3.5.1. Enabled Feedback Mechanisms

One element that stood out in both crisis incidents is that feedback mechanisms that were supposed to be working failed. Feedback mechanisms enable three things for the organization: learning, monitoring, control. In the case of the MV Princess Ashika, the Cabinet should not have bypassed the procurement committee in their decision to purchase the ferry. The function of the government's procurement committee is to perform due diligence in all aspects of the purchase and recommend to the cabinet whether the purchase should be made or not. When bypassing this mechanism, there was no way for the Cabinet to learn, monitor, or control the situation. In the case of Barings, the simple separation of duties that allow for check and balances was not performed. This is not to mention that when dealing with hot assets like cash, reconciliation is critical for meaningful feedback. When these feedback mechanisms were not implemented, it allowed Leeson to deviate from established processes within Barings. It is not surprising that the literature points out that organizations who have high vigilance and monitoring capabilities tend to have fewer latent errors (see Ramanujam & Goodman, 2003; Weick et al., 1999).

3.5.2. An OCTAPACE Culture

As explained above, latent errors have reinforcing characteristics that allows it to grow but also makes it difficult to counter (Ramanujam & Goodman, 2003). As such, one of the best ways of countering latent errors is to have an open culture whereby organizational actors are able to communicate with one another freely. In the case of the MV Princess Ashika, Ms Mone (CEO for Ministry of Transport) was questioned by the attorney general whether due diligence was done on the ferry. Her reply is that the Minister said it has been done. Due to the fact that the reassurance came from the minister, the attorney general did not pursue further the issue. In the case of Barings Bank, no one wanted to question Leeson's activities for he was a "star" performer for the organization and thus questions on his activities were discouraged. An organization that has an OCTAPACE (openness, confrontation, trust, authenticity, proaction, autonomy, collaboration, and experimentation) culture will be far more effective in monitoring deviations and dealing with the deviations effectively because the information access is not restrictive and dealing with problems in an innovative manner is encouraged rather than suppressed (see Lather et. al., 2010; Solke, 2013; Choudry, 2011; and Subrahmanian, 2012). Organizations that are willing to identify, report, discuss, and remedy failures, will reduce the number of latent errors found in their systems (Choo, 2008).

4. Theoretical Model Derived from the Study

Katz and Kahn (1966) discussed that for any organization to survive, open systems must move to arrest the entropic process; they must acquire negative entropy. The entropic process is a universal law of nature stipulating that by default, all forms of organizations move towards disorganization. This means that each organization has a trajectory whereby positive entropy would mean the movement of the organization towards disorganization whereas negative entropy is when the organization halts its movement toward disorganization. Based on the above discussion, it means all organizations are on a trajectory to death—this means that the latency period is dependent on the accelerators or the decelerators of the trajectory of the organization. The survival of an organization therefore is dependent on its foresight and its ability to detect beforehand incidents that if not dealt with will accumulate and result in matters that are beyond organizational capabilities. Thus for the organization to be able to "see" clearly, the latent errors must be minimized. Thus the model built on this study is a combination of the law of entropy, the accelerators and the decelerators identified in the study, and how it relates to the trajectory of the organization towards disorganization (or a crisis).

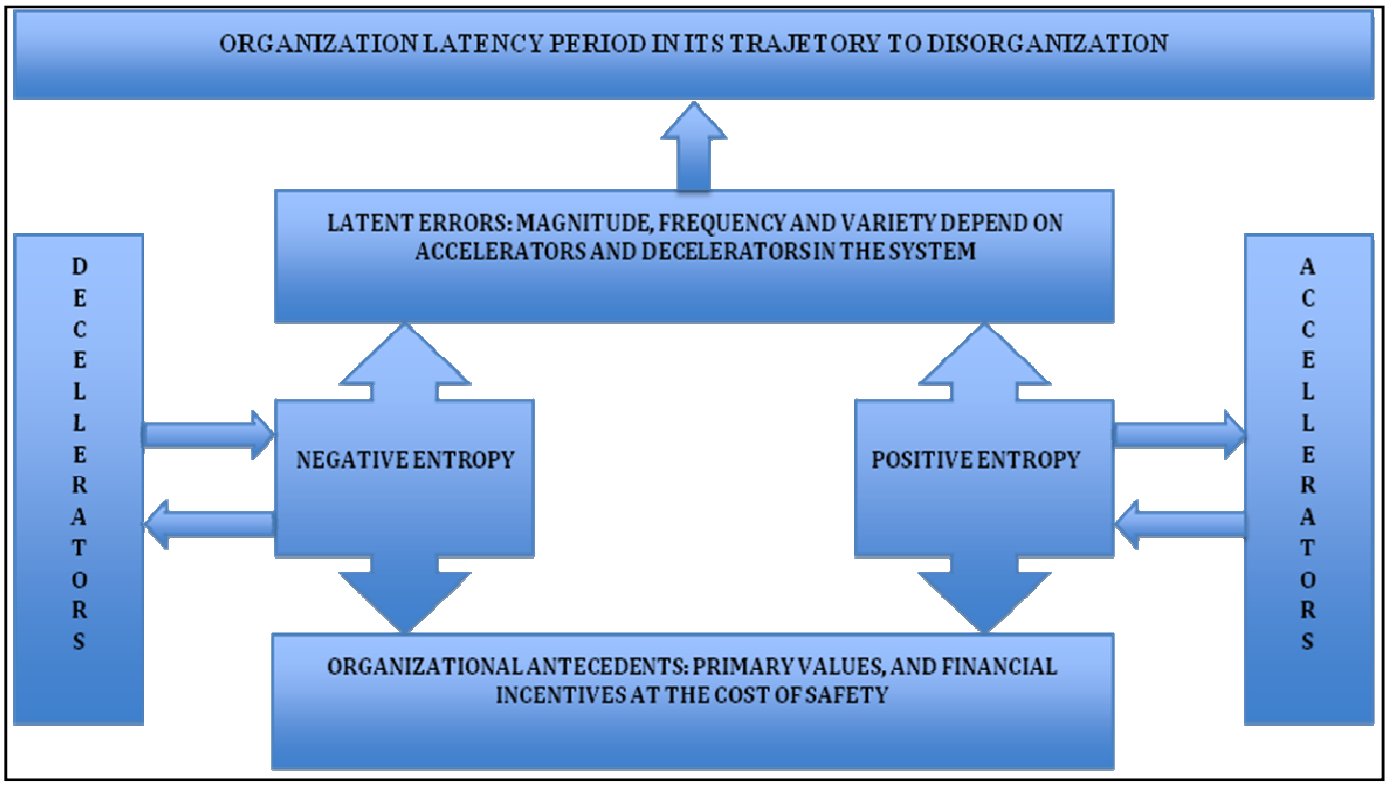

Figure 1: Latent Error Model of Crisis

5. Discussion of Theoretical Model

Figure 1 is a representation of the discussion in this paper built from the data and the literature collected. The following propositions therefore are derived from the model and will be discussed and it is applicable to cumulative crisis.

Organizational antecedents consist of management primary values as well as the pursuit of financial goals to the detriment of safety issues. The rationalization for latent errors arises when the management pursues financial goals at all cost and there fore are birthed into the system.

- Proposition 1: Where management is primarily interested in financial goals even at the detriment of safety issues, the rationalization for latent errors arises and is birthed into the system.

The magnitude, frequency, and variety of latent errors present in the system are a function of the accelerators and decelerators within the system. This means that when accelerators are dominant in the system, the magnitude, frequency, and variety of latent errors present in the system increases. When decelerators are dominant in the system, the magnitude, frequency, and variety of latent errors present in the system decreases.

- Proposition 2: The magnitude, frequency, and variety of latent errors present in the system are a function of the accelerators and decelerators within the system.

Where latent errors become rampant in the system, organizational foresight failure is inevitable. Where organizational foresight fails, the latency period for the organization in its trajectory to a crisis (disorganization) is also shortened. In other words, the distance between an organization birth and its disorganization has just been shortened. Organizational foresight enables the organization to ***delay*** the inevitable but when foresight fails, it is just a matter of alignment (see Perrow (1994) for a discussion of alignment).

- Proposition 3: Where latent errors are rampant in the system, the latency period for an organization in its trajectory to a crisis (disorganization) is shortened.

6. Conclusion

Organizations are complex systems and therefore the presence of latent errors is guaranteed. Thus it is important that managers realize that what they can control is not the existence of latent errors—rather they can control the magnitude, frequency and variety of latent errors. The organization can intervene by setting up measures against the accelerators as well as the primary values of managers. What should be remembered is that when latent errors are minimal in the system, the latency period for the organization last longer. Future research should be geared to the operationalization of the above-mentioned propositions so that it can be measured quantitatively. Further, attention should be paid to the decelerators of latent errors in order to counter the rampancy of latent errors in the system. Finally, a longitudinal study should be considered in order to determine what amount of latent errors are present in the system and the time period between its rampancy and the organizational crisis incident in order to further our understanding of its impact and role.

7. Note

The data for the two crisis incidents discussed in this article was taken from the formal inquiries into them. For the sinking of the MV Princess Ashika, the data were from the Royal Commission of Inquiry into the Sinking of the MV Princess Ashika (2010). For the Barings Bank, the data was collected from the Board of Banking Supervision (1995) report of the board of banking supervision inquiry into the circumstances of the collapse of Barings.

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