

# Safety+Matters

MAKING THE DIFFERENCE IN SAFETY  
SINGAPORE INSTITUTION OF SAFETY OFFICERS  
ISSUE 1 2024

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## FOR A SAFER AND HEALTHIER WORKPLACE



**Data Analytics:  
Revolutionizing Safety and  
Risk Management**

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# Welcome to

## Executive Committee

SISO Executive Committee as of 1 Mar 2023

The management of the Institution is vested in the Executive Committee, comprising 10 members, who are elected from amongst voting members at an annual general meeting, every 2 years.



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Mr. Winston Yew  
MOM Ex Officio  
(WSHC Council Director)



Mr. Darajit Daud  
Vice President



Mr. Eric Law  
Vice President



Mr. Roger Lim  
Honorary Secretary

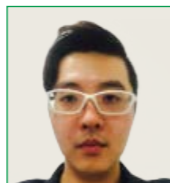


Mr. Lim Sui Soon  
Honorary Treasurer

### Executive Committee Member



Mr. James Tay



Mr. Kenneth Seah



Mr. Seah Liang Bing

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## Note from Vice President



Mr Eric Law  
Vice President

Dear SISO members

We will hold our annual general meeting and election on 15 March 2024.

Our Singapore Institute of Safety Officers is more than just a collection of individuals; it is a thriving community of WSH professionals built on shared values, common goals, and a vision for a better future for WSH professional and safer workplace.

Our association has a rich history of dedication, hard work, and collective achievement. We are a trusted partner to Ministry of Manpower, Workplace Safety & Health Council, NTUC and many more other associations.

As we look ahead, the newly elected president and executive committee (EXCO) need to build on these foundations and take our organization to new heights.

Additionally, it is importance to stay abreast of industry trends and technological advancements. In an ever-evolving world, we must adapt and innovate to remain relevant. The new team must keep our association at the forefront of our field, providing members with the tools and knowledge needed to thrive.

Financial stewardship is crucial as running an association is like running a company, there are overheads and cost to be managed and to invest in initiatives such as organising workshops, seminars, and networking events.

Together, we can elevate our association to new heights and ensure a bright future for all. I humbly ask for your support, trust, and collaboration in this endeavour to step up to serve or elect the best qualified candidates in to the EXCO.

Let us embark on this journey together, united in our commitment to the success and prosperity of our beloved association.

Thank you, and let us build a future we can all be proud of.

# SISO 50th Annual General Meeting

**Date:** 15 March 2024

**Time:** 6:00 pm - 9:00 pm  
(Registration starts at 6:00pm)

**Venue:** Devan Nair Institute For Employment And Employability (e2i), Hall 1 & 2  
(80 Jurong East Street 21, Singapore 609607)

**The agenda:**

- President's Address
- To confirm the minutes of the 49th Annual General Meeting held on 27<sup>th</sup> July 2023.
- To receive and adopt the SISO Statement of Accounts for the financial year ended 31 December 2023.
- To receive and adopt the SISO Annual Report for 2023.
- Election of Office Bearers.
- To transact any other business for which 7 (seven) clear days' notice in writing has been received by the Honorary Secretary of SISO.
- The copy of the written notice is to be sent to and received by the Membership Department ([admin@siso.org.sg](mailto:admin@siso.org.sg)) before 1pm on 8<sup>th</sup> March 2024.



**FEATURE**

By Mr Chiam Lihao



## Unlocking Workplace Safety: The Transformative Impact of Data Analytics

**In today's industrial landscape, where technological advancements constantly redefine the limits of innovation, workplace safety and health have assumed paramount importance. Employers, regulators, and employees alike recognize the significance of upholding a secure and healthy work environment. In this context, data analytics has emerged as a potent instrument, fundamentally reshaping how organizations address safety protocols and manage risks.**

**Utilizing Data Insights**

Data analytics taps into the wealth of information generated within workplaces, spanning from incident reports and near-misses to employee feedback and environmental data. By leveraging this data, organizations can extract invaluable insights into their operations, detecting patterns, trends, and potential hazards that might jeopardize safety and health.

**Predictive Analysis for Pre-emptive Measures**

Among the pivotal contributions of data analytics to workplace safety is its capacity for predictive analysis. By scrutinizing historical data and pinpointing precursors to accidents or injuries, organizations can proactively implement measures to avert incidents before they happen. For example, predictive analytics can identify potential equipment failures based on maintenance records or highlight areas with elevated rates of ergonomic-related injuries, prompting assessments and adjustments.

**Real-time Surveillance and Intervention**

In addition to predictive capabilities, data analytics enables real-time monitoring of safety metrics. Sophisticated sensor technologies and IoT devices continuously

gather data on various parameters like temperature, air quality, noise levels, and equipment performance. Analyzing this data in real-time allows organizations to swiftly detect anomalies or deviations from established safety thresholds, facilitating prompt intervention to prevent accidents or mitigate risks.

**Insights into Behavior and Training**

Moreover, data analytics provides insights into employee behavior and adherence to safety protocols. By analyzing data from wearable devices, surveillance cameras, or digital tracking systems, organizations can identify unsafe behaviors or deviations from established procedures. This information informs targeted training programs and behavioral interventions, empowering employees to make safer choices and nurturing a culture of safety within the organization.

**Efficient Resource Allocation**

Data analytics also plays a vital role in optimizing resource allocation for safety initiatives. By identifying high-risk areas or processes, organizations can allocate resources more efficiently, channeling

investments towards interventions with the greatest potential impact. Whether it involves upgrading safety equipment, implementing additional training programs, or redesigning workflows, data-driven decision-making ensures that resources are allocated where they are most needed, maximizing the efficacy of safety interventions.

**Streamlined Compliance and Reporting**

Furthermore, data analytics simplifies compliance monitoring and regulatory reporting. By automating the collection and analysis of pertinent data, organizations can ensure compliance with safety regulations and streamline reporting processes. This not only reduces the administrative burden associated with regulatory requirements but also enhances transparency and accountability, enabling stakeholders to monitor safety performance and progress over time.

**Addressing Challenges and Ethical Considerations**

Despite its myriad benefits, the adoption of data analytics in workplace safety presents challenges. Concerns regarding data privacy, ethical considerations, and the potential for algorithmic bias must be carefully addressed to ensure the ethical and equitable.

# Three Most Important Organizational Traits to Prevent Major Accidents



Mr. Soon Boon Chew  
Principal Consultant



*When profit comes before safety, disaster looms.*

## Where should management focus on to prevent the next accident?

While there are numerous things they could do, it is more practical to focus on a few of them. To identify these critical few, we can learn from accidents.

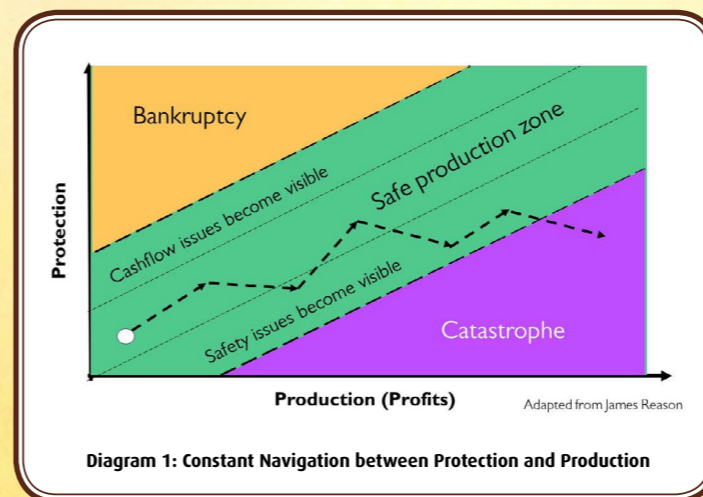
While the technical causes of major accidents vary, their organizational causes are eerily similar. These organizations share traits which foster accidents. I use the term “traits” instead of “activities” because traits are what organizations have, while activities are what people do. Think of traits as pillars of a house, while activities are the work that strengthens or weakens the pillars. Traits are outcomes to achieve; activities are the inputs.

This article covers the three accidents below and shares their common traits.

1. Deepwater Horizon fire (2010)
2. Boeing Max plane crash (2019)
3. Space Shuttle Columbia explosion (2003)

## Drift to failure

The diagram below illustrates three zones an organization operates in. The optimal zone is “safe production” which balances profits and protection.



Organizations, however, do not remain static in these zones—their position often changes due to the tension between safety and production. When management prioritizes profits before safety, the organization drifts towards the catastrophe zone, leading to visible safety problems. In such cases, the responses of frontline supervisors and workers determine whether the drift continues or the organization self-corrects.

For each of the accident mentioned above, a drift to failure occurs, and it can be attributed to three organizational traits.

## Three traits of accident-prone organization

### 1. Profit before safety

The three organizations above (i.e. BP, NASA, Boeing) prioritize profits over safety.

- Deepwater Horizon
  - “BP’s **cost or time-saving decisions** without considering contingencies and mitigation were contributing causes of the Macondo blowout”<sup>1</sup>
  - “After became CEO in 1995, Browne drove a stunning spree of acquisitions while pushing BP into riskier drilling and **ruthlessly cutting costs**. In 1990, for example, he cut 1,700 jobs before tasking managers with finding \$750 million in budget reductions.”<sup>2</sup>
  - “Whether purposeful or not, many of the decisions that BP, Halliburton, and Transocean made that increased the risk of the Macondo blowout clearly saved those companies significant time (and money)”<sup>3</sup>.
- Boeing Max
  - “The failures of the 737 Max appear to be the result of an **emphasis on speed, cost, and above all shareholder value**.”<sup>4</sup>
  - “Boeing outsourced coding of software to engineers who were paid as little as \$9 an hour. [...] concerted effort by Boeing to reduce costs, laying off experienced engineers among other things as they went on a **cost-cutting exercise**.”<sup>5</sup>
- Space shuttle Columbia
  - “Upon his arrival at NASA in spring 1992, Administrator Daniel S. Goldin accelerated the trend toward “**smaller, faster, cheaper**” missions employing [...] lower-cost launch vehicles, simpler management techniques, and, where appropriate, reduced management oversight.”<sup>6</sup>
  - “The measure of NASA’s success became **how much costs were reduced** and how efficiently the schedule was met.”<sup>7</sup>

### 2. Climate of fear

A climate of fear was prevalent in these organizations, hindering open communication about safety concerns.

- Deepwater Horizon
  - “Only 46.3 percent of participants felt that, if their actions led to a potentially risky situation (e.g., forgetting to do something, damaging equipment, dropping an object from height), they could **report it without any fear of reprisal**.”<sup>8</sup>
  - “The Ombudsman’s Office was established because line workers reported **fearing retaliation** if they reported safety concerns to management.”<sup>9</sup>
- Boeing Max
  - “In the case of Boeing, they had a **culture of concealment**, deliberate concealment regarding the MCAS system, and the evidence kept mounting.”<sup>10</sup>
  - “Ewbank said he hadn’t filed a complaint during the development of the Max because, in part, the **fear of retaliation is high**.”<sup>11</sup>

- Space shuttle Columbia
  - “Open communication is not yet the norm, and people do not feel fully comfortable raising safety concerns to management. [...] There appear to be pockets where the management chain (possibly unintentionally) sent signals that the **raising of issues is not welcome**.”<sup>12</sup>
  - “ABC News anchor Charlie Gibson asked Rocha why he hadn’t spoken up in the meeting. The engineer replied, “I just couldn’t do it. I’m **too low down** [in the Management organization]... and she [meaning Mission Management Team Leader Linda Ham] is way up here,” gesturing with his hand held above his head.”<sup>13</sup>

**3. Complacency**

The third trait in these accidents was a culture of complacency, whereby risky decisions and unsafe practices became the norm.

- Deepwater Horizon
  - BP [...] was operating under a “**culture of complacency**” and needed top-to-bottom reform, the head of the presidential investigation into the oil spill said today<sup>14</sup>.
  - Workers said [...] they “**often saw unsafe behaviours** on the rig”<sup>15</sup>.
- Boeing Max
  - Boeing **played down concerns** over the 737 Max after one of the planes operated by Lion Air crashed in October [...] The head of the union said, “Boeing did not treat the 737 Max 8 situation like the emergency it was.”<sup>16</sup>
- Space shuttle
  - Cultural traits and organizational practices detrimental to safety were allowed to develop,” the report stated. NASA engineers and decision-makers **relied on past successes** with the shuttle as a substitute for sound engineering practices.<sup>17</sup>
  - Investigators condemned NASA’s top officials for **showing a “lack of concern”** about the technical problems engineers brought to their attention.<sup>18</sup>

**Why These Traits Appear Together**

These traits are not unique to the mentioned accidents; they are recurrent in disasters like the Dhaka Bangladesh factory fire, the Volkswagen diesel gate scandal, and the Fukushima nuclear leaks. The concurrent nature of these traits suggests they build upon each other. The diagram below explains why.



**1. Win-at-all-cost mentality**

When financial targets become non-negotiable, management become reluctant to listen to dissenting voices. For example, at Boeing, engineers who asked for more testing or safety improvement were repeatedly warned “very directly and [in] threatening ways that their pay was at risk if cost reduction and timing targets were not met.” This fosters a climate of fear.

**2. Bad news not reported to change course**

All the accidents above were preceded by weak warning indicators which were captured by workers. They did not occur out of the blue. However, as the workers feared being blamed or even sacked, they kept quiet, resulting in bad news not travelling up the organization. As a result, the management assumed that all is well and continue their relentless pursuit of profit.

**3. Cost cutting does not cause accidents**

Even though initial cost-cutting trimmed the margins of safety defences, it did not result in an accident. The riskier equipment condition or worker behaviour was accepted and became the new norm—a phenomenon known as the normalization of deviance. Consequently, complacency breeds, resulting in more deviations which pushed the organization into the catastrophe zone.

**4. Underestimate impact of cost-cutting**

Complacency causes management and workers to overestimate the health of safety defences and underestimate the impact of cost-cutting. When all they perceived is a rosy picture, they continued down the path of profit maximization.

**5. “I know best” mentality**

Management who is complacent believes they have all the answers. Instead of listening to opposing views, they insist on doing thing their way. This creates a climate where employees fear speaking up.

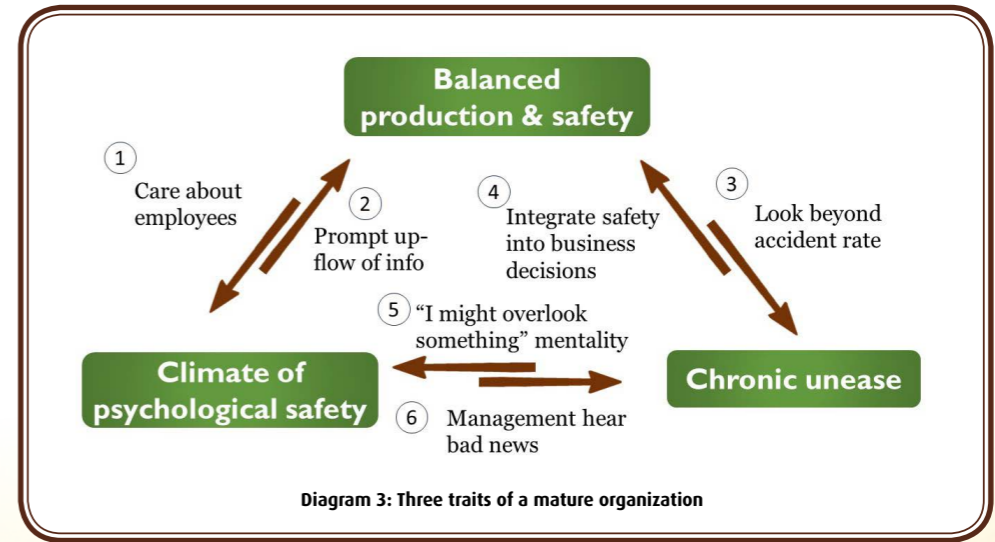
**6. Management only hears “yeses”**

When workers fear retaliation, they either keep quiet or give politically correct answers. When management only hears “yeses”, they become more complacent.

**How the three traits impact safety**

The “profit before safety” trait hurt safety performance directly by weakening its defences (e.g., equipment is not maintained and rule-breaking behaviours are tolerated.) The effects of fear and complacency however, are indirect. Fear makes organization slow to adapt to changing circumstances, while complacency makes organizations oblivious to actual situations.

Simply put, an organization with fear is unable to learn, while the same with complacency does not see the need to learn. Such an organization is like a car— with its brakes and steering wheel removed—speeding towards a cliff. It simply lacks any means to stop the drift to failure.



**Three traits of a mature organization**

The opposite of an accident-prone organization is a mature organization. Its defining trait is a balance between production and safety. While its management understand the need to increase profits, they look further into the horizon and understand the benefits of staying in the safe production zone. Even though such an organization experiences the drift to failure from time to time, they detect the drift early, initiate preventive actions and return to the safe production zone quickly. A balanced approach to production and safety allows two other traits to flourish: psychological safety and chronic unease.

**1. Care about employees**

An organization that values safety is also one that cares for its employees. Its management sees employees as an asset, rather than a tool, and they strive to build trusting relationships. What resulted is psychological safety—a climate in which people feel comfortable raising ideas without fear of embarrassment or retaliation.

**2. Constant up flow of information**

The presence of psychological safety allows bad news to travel quickly and accurately up the organization, thereby allowing the management nip safety problems in the bud. The information communicated not only restrict to safety, they relate to business, operation, and quality as well. This means the organization in general becomes nimbler and more innovative.

**3. Look beyond the accident rate**

A mature organization understands that the absence of accidents does not mean the presence of safety. Instead of relying solely on accident rates, its people are sensitive to weak signals in their daily work, and actively ask questions to detect risks. They do not take things for granted. This is known as chronic unease—a healthy scepticism about the unknown.

**4. Integrate safety into business decision**

Chronic unease leads to cautious and thoughtful decision-making. Instead of asking “Has an accident occurred?” management and workers ask “What have we overlooked?” They integrate safety into their daily decisions, which reinforces the trait of “balanced safety and production.”

**5. “I might overlook something” mentality**

When chronic unease is present, management and supervisors actively seek information to confirm holes in the safety defences. They acknowledge their blind spots and demonstrate a positive desire to learn from others. This enhances the climate of psychological safety.

**6. Management hears bad news**

The presence of psychological safety allows bad news to be reported to management. They learn the hard truths as they navigate in a complex environment. The mistakes and errors made keep them on their toes, which reinforces the sense of chronic unease.

**Conclusion**

To prevent the next accident, management should focus on balancing safety and production, and allowing chronic unease and psychological safety to thrive. These traits reinforce each other, keeping the organization in the safe production zone, even in the face of deviations.

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By Mr Mark Tan

# Learning to be Helpless?



As early as we can remember, we were told to go to school and learn. Later in life, some will learn the bad things, good things and useless things. And in this era, Lifelong Learning has become a cliché word that has varied meanings. But have we come across a term where we learned to be 'helpless'?

Martin Seligman and Steven Maier first coined the term of 'Learned Helplessness' in the 60's with experiments (Maier & Seligman, 1967). So, to put in simply, when an individual is regularly dealt with uncontrollable or bad consequences will tend to 'learn' to believe that they are unable to control the situation. This increase understanding of helplessness can easily lead to poor motivation to deal with the challenges. For example, a worker will inform the supervisor repeatedly that the harness is faulty. After countless attempts, the worker may just sit on it and not react further – "I told the supervisor, and he did not do a thing to the faulty harness...so we just continue to use them..." Doesn't this sound familiar?

In our workplaces, lapses in safety (or security) can have significant consequences. Such implications may mean that workers regularly have to deal with or experience unsafe work environments or conditions. They will fail to report near-miss or any positive intervention that can make the workplace better or at least safer. Given time, they would have developed a sense of helplessness that can multiply in many ways.

**Safety is compromised:** Workers will perceive and react poorly to safety alerts and even ignore warnings as they considered that their actions will not help much. Such ignorance and devaluation of safety concerns will not be taken seriously.

Reduced responsibility: 'It is someone else's problem!' Workers will only look tightly within their span of responsibility and nothing beyond. Such actions will soon be etched into the company's culture and soon productivity and morale will slip. Workers will teach workers to 'care less' for others and in not time, actions and mindsets will be 'careless.'

**Communication:** When one only looks after one's turf, communications will not go far. Workers will feel the need not to interact beyond what is needed. With these suppressed actions, workers will either go silent or speculate the information which may become more harmful instead. One good example will be workers being alienated and my subsequently lead to the inability to cope with the information.

In today's context, workers regularly face with poor safety conditions, compromised SOPs, motivational deficits, inept communications, and the list goes on. However, given the awareness, there is still mountains of optimism that we can battle these 'Helplessness.' Rather than looking at these deficits, we can get small things right first and in no time, these should manifest healthily. However, while these suggestions may sound good, it should not be taken so prescriptively as each company has their own culture or dynamics. Let us start from the top:

**Leadership:** Leaders should be involved actively and promote a culture of safety and should set an example by following safety protocols themselves. This concept, idea and reality has been echoed countless times in meetings, conferences, journals and research. Being the leader, one becomes the 'spread point' of many influences that can move the masses, just like any YouTube or TikTok influencer.

**Interactions:** Healthy communications is so crucial in sending the message to the workers. This will not only diminish helplessness but also give a booster to the morale. Studies show that regular communication gives healthy relationship and reduce barriers. One good example would be the daily safety

briefing that helps regulate the team and also reinforces the significance of safety. Such enablers will help put things in place and create a circle of like-minded workers who would express their situations better.

Given this sharing, in some ways, it may not all begin at the workplace. This concept is tied coherently to our growing up years because it just simply brings itself from one stage to another- from our childhood to teen-hood and subsequently to adulthood. One classic example, as a student, poor performance in school despite pouring in all the effort makes one helpless. This poor little inaction gets repeated and multiplied and over time which suppresses good opportunities to improve. And by the time they reached adulthood, such cognitive expectations would have been ingrained. The toxic part is that these get transfer so easily to the workplaces.

While every effort is made to diminish learned helplessness, the passivity of it is ostensibly is still part of the culture here. Having seen and experienced this in real life, there is no running away. In my own humble opinion, the most reasonable insurance now would be leaders taking on leaders and employees taking the path of positive learning. Both groups have to make adjustments and improve along the way. Once again, is there a silver bullet to this, the definite answer is 'NO!'. But given these small attributional efforts by both groups, we least be able to see a silver lining.

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