
From stress to success: Neuroscience-informed training for cyber security first responders

Received (in revised form): 18th May, 2023



Carol Barkes

Conflict & Communication Advisor, NeuroMediation Group, USA

Carol Barkes is a neuroscience-based conflict and communication thought leader, best-selling author, sought after keynote speaker and consultant with a wide variety of results producing experience. Carol is also an adjunct professor at several universities and has provided training, consultation, facilitation, coaching and mediation for many of the world's most notable organisations such as Amazon, the U.S. Air Force, HP, Micron and has spoken at the United Nations. She has been described by Fox News TV as 'the TOP Neuroscience and Conflict Resolution expert in the United States' and has been featured as a media spokesperson on a multitude of outlets including NBC, CNN, ABC, CBS, the Wall Street Journal, USA Today, iHeart Radio, and PBS. She holds degrees in Fire Science, Global Leadership and Influence, Conflict Management and Negotiation and has a certificate from MIT in Neuroscience and Leadership with a PhD in Peak Performance Psychology with an emphasis in Neuroscience Based Communication in progress. In careers gone by, she was also a professional firefighter in the San Francisco Bay Area. When she is not off speaking and teaching neuroscience to improve communication and teams around the world, Carol enjoys spending time with her family and friends, scuba diving, hiking, cooking and laughing.

NeuroMediation Group LLC, 6126 W State Street, Suite 303, Boise, ID 83703, USA
Tel: +1 208-477-8973; E-mail: carol@carolbarkes.com



Colby Jones

Attorney, Conflict Resolution Specialist, and Founding Partner of Adkins & Jones, USA

Colby Jones holds an LL.M. in Dispute Resolution from Pepperdine University's Straus Institute for Dispute Resolution. As a litigation attorney and conflict resolution specialist, Colby currently serves as chairperson of the Dispute Resolution Section of the Idaho State Bar. He is a mediator and is listed on the Idaho Supreme Court roster of custody mediators. Colby is a Tedx speaker on the subject of inclusiveness. He previously co-authored for the Idaho legal journal, *The Advocate*. Before seeking a career in law and alternative dispute resolution, Colby was an adjunct instructor for the College of Southern Idaho and Great Basin College. He and his family moved to several continents, where he divided his time between teaching at universities and participating in volunteer activities. He is now committed to advancing dispute resolution for individuals and organisations.

Adkins & Jones, 950 W. Bannock St., Ste. 1100, Boise, ID 83702, USA
Tel: +1 208-280-8072; E-mail: colby@adkinsandjones.com

Abstract This paper proposes a neuroscience-informed approach to training cyber security first responders for disaster preparedness. By incorporating insights from neuroscience research, organisations can develop training strategies that promote stress resilience and enhance decision-making under pressure. The training programmes and techniques proposed herein are not exclusive to a certain personnel role within the response team but are generalisable to all within an organisation facing stressors from large scale disasters requiring timely emergency response. As each organisation has its own particular response team protocols for various types of cyber security emergencies, the authors have suggested approaches to training, particularly as it relates to stress resilience, that are more easily scalable, generalisable and adaptable.

KEYWORDS: neuroscience, training, disaster, stress, cyber security, preparedness

INTRODUCTION

First responders to cyber security attacks and threats share much in common with emergency responders in other fields. The roles require similar skill sets and training. Firefighters, for instance, must be ready to jump into action at the sound of the dispatch alarm. They have trained extensively to ensure they react with precision and expediency in a moment of crisis which could otherwise be disorienting. Without preparedness training, even professionals who have the education and understanding to know the correct action to take during a cyberattack may react emotionally, panic and make critical errors during emergency situations. Further, first responders are quickly followed by other professionals and paraprofessionals responsible for decision-making, managing and playing supportive roles during crises. The stress exposure of second responders can be enormous as well, and they are susceptible to the same emotional and psychological reactions as first responders.

Emergency response training for first responders focuses to a great degree on procedural drills. This is important as it helps to 'hardwire' the required response and reduces the cognitive burden on responders in a moment of crisis. This well-established method of training acknowledges that extreme stress can present a barrier to accurate emergency response. Emergency response training must account for how the brain works under extreme stress.

This paper proposes incorporation of practices informed by neuroscience, a multidisciplinary field of study seeking to describe how the brain functions, into emergency response training for all cyber security professionals. Organisations can use neuroscience-informed training not only for emergency responders, but in training for all personnel who will inevitably be exposed to the stress of emergency response and subsequent recovery. Importantly, it is the days and weeks, even months, after the adrenaline has subsided from a cyberattack

that are perhaps the most conflict-ridden time for any organisation. Internal audits and analysis to determine how a breach occurred are extremely stressful for professionals whose careers are built upon preventing, mitigating and responding to such security threats. Depending on the damage done or sensitivity of the information compromised, external criticisms and investigations will further exacerbate internal stress and conflicts.

A neuroscience-informed approach to emergency preparedness is very similar to how it assists professionals in dealing with any conflict. Conflict, in some part, can be described as the brain's response to stress. Emergency preparedness is essentially training that assists professionals to act against the brain's well-known and predictable natural inclination during extreme stress: flight, fight, freeze.

STRESS AND PRODUCTIVITY

If one has been in the field of cyber security for any length of time, it likely comes as no surprise that this career field is deemed to have some of the highest stress levels of the 853 careers reviewed by O Net, a database managed by the US Department of Labor.¹ Due in part to this reality, the estimated average tenure of a chief information security officer (CISO) is estimated by many sources as being somewhere between 24–48 months.² One study found that 88 per cent of CISOs reported being 'moderately or tremendously stressed'.³ The estimated average cost of replacing a salaried employee is six to nine months' of the employee's salary. Consequently, with the roughly estimated CISO salary of US\$200,000 per year, the replacement costs could rise to as much as US\$150,000.⁴

Although extreme levels of stress are harmful, mild or moderate stress, known as eustress, can actually boost performance.⁵ When it comes to toxic stress, however, research has found the negative consequences can include physical and mental health

challenges; decreases in effective performance, problem-solving skills, and intelligence; and interpersonal difficulties.^{6,7} Researchers have found that the difference between acceptable and harmful stress is whether those undergoing the stress are able to control or anticipate: 1) the cause of the stress; 2) the frequency with which it presents itself; and 3) the severity of the stressor once it appears.⁸ In fact, when individuals simply feel some control over the stress they experience, the stress may be self-described as manageable rather than toxic and harmful.⁹ Consequently, taking as much control of stressors as possible is critical to a CISO and their team.

TOOLS FOR STRESS RELIEF

Acronyms and other mnemonic devices can be a very effective and important component of stress management, as stress itself creates barriers to recall and learning. One such acronym which assists with the control of stressors or increases the perception of control to one's brain and thereby minimises the effects of stress, is 'CRAP'.

The CRAP Model

CRAP stands for conflicts, resistances, anxieties and procrastinations/problems (see Figure 1). The concept, created by Mark Waldman (Loyola Marymount University), is an extremely beneficial way to prevent the brain from fixating on problems and fears, and makes it easier to resolve them by using a combination of logic and creativity.¹⁰ According to Waldman, the following process enables the brain to disconnect from the intensity of the feelings surrounding negative thoughts and fears.

Conflict

Identifying internal conflicts is crucial to stress management. Handwriting, not typing, at least 20 limiting beliefs, worries, fears and doubts, imagined or real, activates the

neural networks important to this process.¹¹ Once the first pass-through is complete, participants should be encouraged to relax for a moment and then consider whether there may be anything else to add to the list. Finally, invite participants to add anything they believe someone close to them might recommend adding to their list.

Resistances

Once lists are complete, the group should take another moment of relaxation, and reflect upon their lists. At this point, the key is to avoid judgment when viewing the document. Instead, the goal is to view the list as if it is being seen for the first time. Relaxing, breathing deeply (or even better, yawning), and stretching during this process will enable those who are giving their full effort to this process a nearly immediate reduction in the intensity of the stress felt by the items on the list.

Anxieties

Continuing, participants will assess their fears and anxieties. They will reflect on whether each negative thought on the list is tangible or happening presently. Many will find their worries and doubts actually stem from memories of events long past without real bearing on the present moment.

Procrastinations/problems

The participant should save and review the list or repeat the process weekly, as discarding the list would cause the brain to revert to ruminating on negativity once again. By keeping the paper, the unconscious brain can relax because it knows the issues have been noted. For listed items deemed to be current and rational concerns, the individual should write down two things that could be done to minimise the problem. Participants should check the list periodically to see if there is anything that can be removed or should be added.

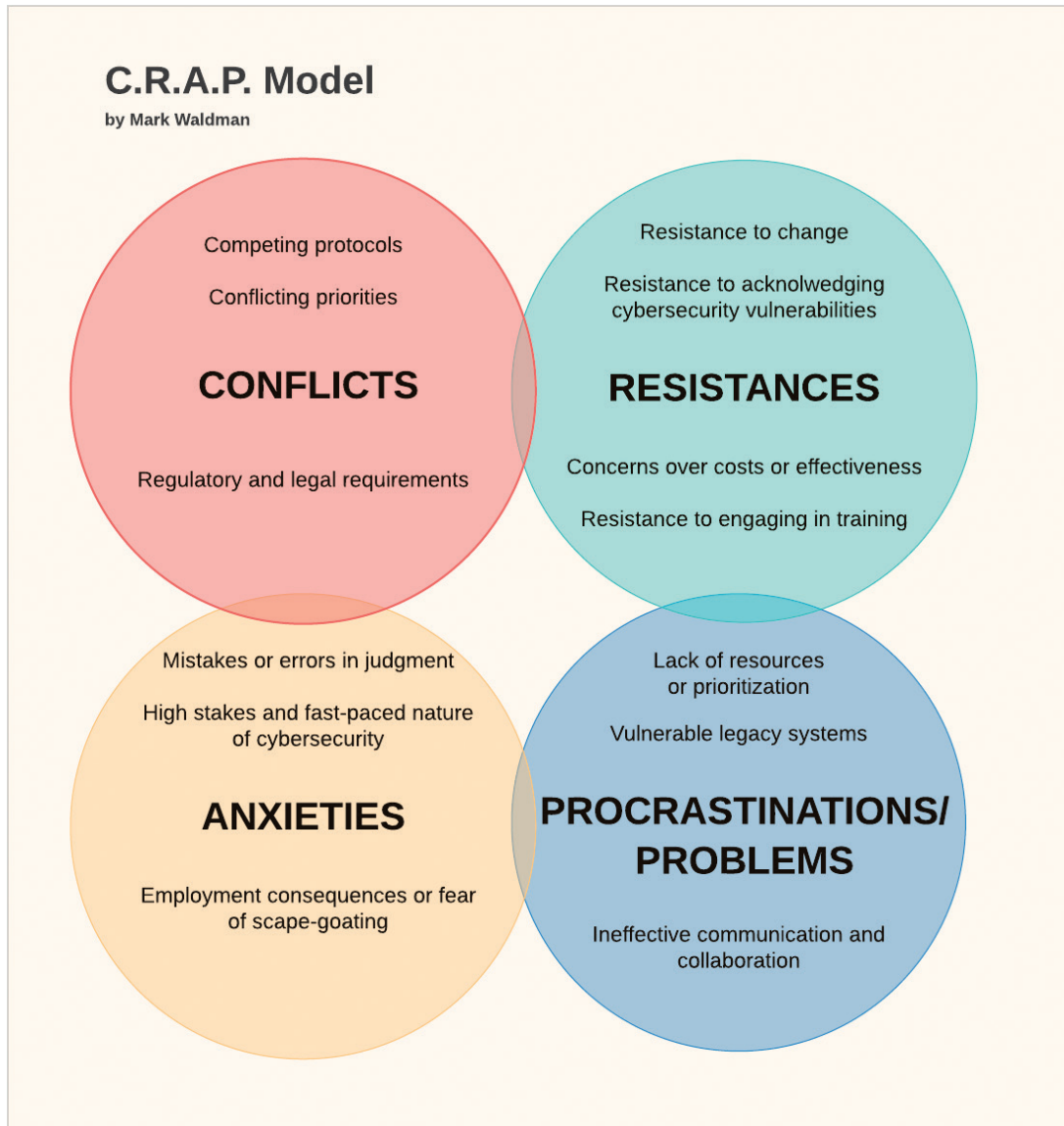


Figure 1: CRAP model

The Intrinsic Mind

Another effective tool to control the ambiguity of stress and find effective solutions to workplace troubles is to utilise processes which give the intrinsic (also known as the subconscious) part of the brain more opportunities for solving our daily challenges. Research has shown the intrinsic brain is far more in charge than originally imagined. In fact, neuroscientist David Eagleman says ‘most of what we do, think

and feel is not under our conscious control’.¹² Because of this reality, it is important to give the intrinsic brain unstructured time do one of the things it does best: resolve problems ‘under the hood’.

Peak performing teams take advantage of this fact by adding unstructured time to their routines to stop thinking about work-related problem solving. Srin Pillay outlines the benefits of this type of thinking in his book, *Tinker Dabble Doodle*

Try.¹³ Pillay expands upon the research indicating that consciously forcing the brain to focus on complex tasks for too long is counterproductive. He posits that allowing the mind an escape from the workplace results in greater productivity, as the intrinsic brain finds solutions not accessible to conscious thought processes. This often results in more creative and effective solutions that appear more quickly.

One simple way to access unstructured brain time is to take a short 2–5-minute break from work each hour to move away from the workstation and exercise the body — ideally outside. Getting out of the office for some deep breaths of fresh air and stretching better enables employees to give their brains a break and stop consciously thinking about work. By doing so, the intrinsic brain is better able to compile ideas without the pressure of attending to the task on which the conscious brain was focused.

Another way to put the intrinsic mind to advantage is to separate brainstorming sessions from decision-making sessions by at least a day, or ideally two.¹⁴ This break between tasks allows the brain an important sleep cycle(s) to consolidate neurons and create unique ideas. One research project on this process revealed that subjects given eight hours to sleep had triple the success rate of those who did not sleep during the puzzle-solving exercises.¹⁵ To maximise the benefits, it is best to think about the problem just before bedtime, as the brain continues to do some of its best work during sleep. This process often results in awaking with new solutions that did not consciously exist a day or two before. Research into the intrinsic mind and peak performance will likely continue to inform the refinement of these practices.

A final option for relieving stress and minimising burnout is to allow teams flexibility to meet their own work–life balance needs. Such flexibility increases job satisfaction and relationships between management and employees.¹⁶ Organisational

consultants can assist in determining where flexibility may be appropriate and necessary, mitigating some of the latent conflict between management and employees in any organisation. Even small amounts of autonomy over scheduling can yield significant increases in productivity.¹⁷

FAILURE AND CREATIVITY

Although counterintuitive, failure, like conflict, is productive depending on how organisations treat it. Using the following statistics of cyber security breaches as examples, it can be difficult to comprehend how failure is actually productive:¹⁸

- Sixty-six per cent of the organisations surveyed had experienced at least one security breach in the past year, while 30 per cent had experienced multiple breaches;
- Twenty-four per cent of CISOs said that their board refuses to acknowledge breaches are inevitable;
- The majority of both CISOs (37 per cent) and C-Suite (31 per cent) believe the CISO is ultimately responsible for the response to a security breach;
- Twenty-nine per cent of CISOs believe the executive team would fire the responsible party, which is confirmed by the C-Suite (31 per cent). A fifth (20 per cent) of CISOs believe they would be fired whether they were responsible or not;
- Ninety-seven per cent of the C-Suite said the security team could improve on delivering value for the amount of budget they receive.

Many see failure as a negative indication of their ability. Others consider the *lack* of failure to be failure in and of itself. In fact, the fear of failure actually shrinks our brains and makes us less creative.¹⁹ To leverage the value of failure, create a work environment supportive of failure and frame it as a positive

step towards future success and better cyber security strategies. However, this framing improves team productivity only if teams seek to learn from their failures. In other words, debriefing is critical to the process of failing forward.²⁰

This debriefing process should be employed regularly to maximise benefits, as rapid feedback is one of the key indicators of growth toward expertise in any given field.²¹ After a self-proclaimed ‘failure’, explore team processes and consider possible improvements to team response. Conducting this process together in a non-judgmental and objective manner is vital. During debriefing, focus on the process rather than on any specific individual. The more tempting it may be to blame a specific individual, the more likely that process and system improvements will be missed. By avoiding ‘scapegoating’ and instead focusing on the systems which will likely outlast the people, a team ensures whoever may fill positions are better able to maximise opportunities for future success.

During the objective process of dissecting system failures and shortcomings, teachable moments will naturally present themselves. As team members engage in the non-judgmental process of system improvement, they will likely see where they may have personally fallen short and learn from the experience in a more meaningful way than if faults were coldly identified by management and used to berate the individual or team. In short, each debriefing can increase a team’s skill level while improving the organisation as a whole well into the future.

Fortunately, for those CISOs willing to break away from the fear of failure, Kevin Desouza and his colleagues created a five-step failure-friendly process (see Figure 2), as follows:²²

- *Step 1:* Create a process for brainstorming and idea implementation. This process should be transparent with a known location for members to view and learn about the ideas and efforts of the team;
 - *Step 2:* Establish a specific vetting process for determining the feasibility of the generated idea;
 - *Step 3:* Create a space, or avenue, for testing ideas so prototypes can be developed. In short, this should be the place where ideas are tinkered with and fine-tuned;
 - *Step 4:* Obtain buy-in from stakeholders;
 - *Step 5:* Launch the concept, while leaving room for disappointment if the ideas do not make it to fruition.
- A wonderful by-product of establishing such processes is that team members are included in organisation change processes and benefit from positive brain chemicals associated with inclusion and having their ideas acknowledged. David Rock of UCLA created another change process designed to augment features that allow one’s brain to more easily adapt to change. His process takes advantage of the value that comes with team member inclusion. Known as the SCARF (status, certainty, autonomy, relatedness and fairness) model, Rock recommends the following actions to ensure change has the best chances for being received successfully:²³
- *Status:* When processes change, try to ensure employees’ status remains roughly the same as it was before the change. The titles and process can change, but their level and importance within the organisation should be as unscathed as possible;
 - *Certainty:* Inform stakeholders of as many aspects of the impending change as possible to leave little room for conjecture and rumour. If all the details are not yet available, transparency in that regard is valuable, as well;
 - *Autonomy:* Sincerely allow affected employees to offer their ideas and suggestions. Even if the suggestions cannot be later utilised, employees will feel more fairness about the changes by being sincerely heard and are better able to

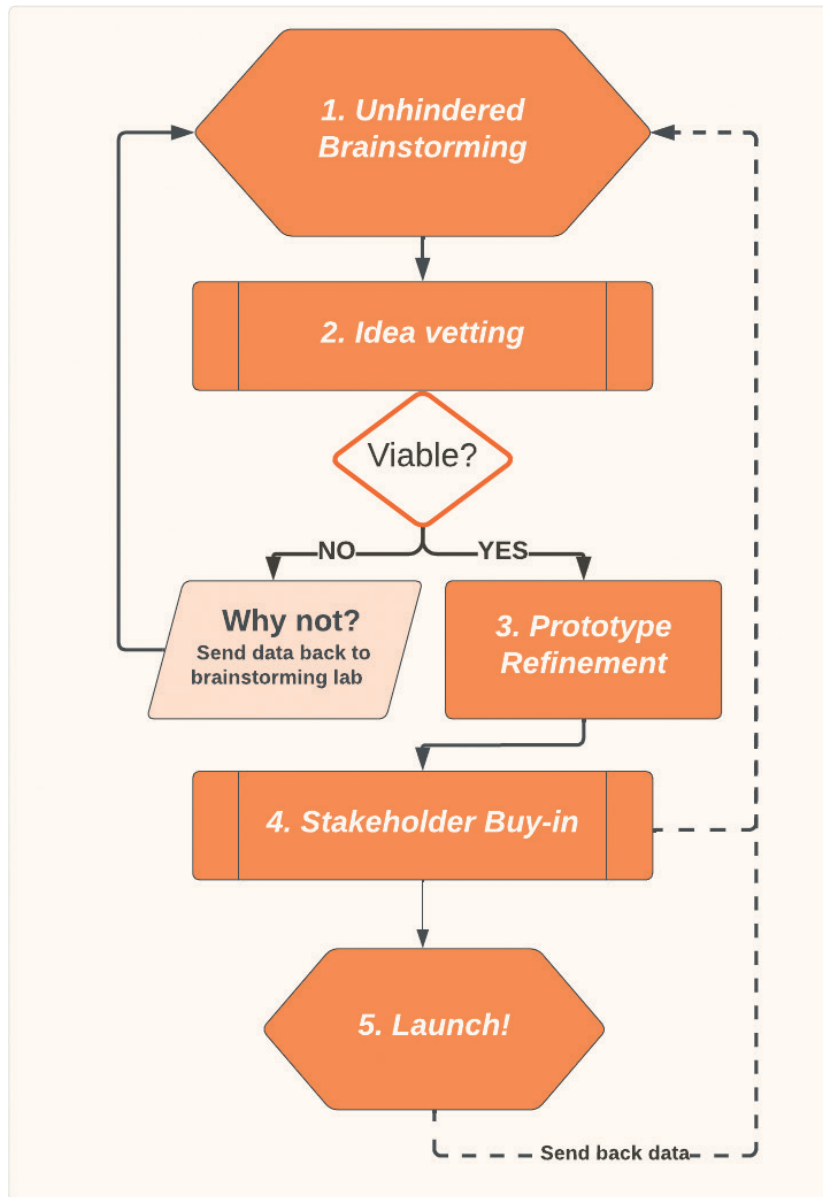


Figure 2: Five-step process

understand the rationale behind decisions. Feeling included is what creates the brain's positive feedback;

- *Relatedness*: If a change is going to occur, make sure information is shared from those who are implementing the change rather than from conversation at the water cooler, as it were. Again, the idea is to create more meaningful connection and inclusivity from the top to the bottom.

Information poverty leads to speculation and distrust. When taking a neuroscience-informed approach to organisation management and change, inclusiveness triggers the reward centres of the brain needed to promote team cohesion and morale;

- *Fairness*: Make sure the changes are as fair as possible. People have such a strong innate desire for fairness that inequities

will be long kept in an intrinsic mental log to be righted another day. This storing of inequities can be very costly to organisations.

When considering the SCARF model of change, one section deserves some additional attention: certainty. The brain is hardwired to react in a fear-based manner when confronted with uncertainty. Consider the common experience of fear when a supervisor asks to see an employee in their office. Employees generally feel some sense of fear and angst, albeit very often imagined. Seldom does the brain process the request to speak with the supervisor in a positive way, but rather creates a fear-based reaction in preparation for the worst-case scenario based on the unknown. No matter whether an organisation is managing day-to-day operations or in the midst of trying to minimise the damage caused by a cyber security attack, sharing as many details as possible will help calm the fear-based brain.²⁴

COMMUNICATION

During a cyber security crisis, communication often becomes strained, as fear and uncertainty take over stakeholders' reaction to the threats — both personal and professional. When this occurs, people often say things they later regret, eliciting negative reactions from their teams. Thus, the recovery stage is less successful, takes longer and key opportunities for damage mitigations remain overlooked. The importance of considering communication approaches during stressful events cannot be overstated.

Although too often swept under the rug or justified when it occurs, the raised voice is counterproductive and should be avoided at all costs. Negative stress reduces working memory, and research has shown that using verbal aggression (yelling at an employee) reduces their working memory by as much as 52 per cent — anathema to rapid recovery response.^{25,26} Instead, before

managers have difficult conversations with direct reports, they should ensure their own stress is managed — a classic 'put on your mask first' scenario. Those in positions of authority should refrain from using dictatorial or harsh tones, which only serve to shut down the recipient's desire to work effectively and activate their 'fairness radar' in a negative manner. Further, verbal aggression signals to the brain that the manager is the immediate threat or problem, rather than the cyberattack. Finally, such behaviour only gives impetus to increased turnover, which as previously noted, is a very expensive statistic to justify. Instead, those in authority should view their reports as respected colleagues and speak to them accordingly. This can be more easily accomplished if CISOs and C-suites refrain from the unproductive viewpoint that employees are the problem or an obstacle in their way.²⁷ Instead, viewing them as allies in solving the real issue at hand — the cyber security breach — opens the door to more productive, safe and collaborative problem solving.

MIRROR NEURONS

Another neuroscience gem that can benefit all stakeholders is the concept of mirror neurons. Mirror neurons fire when an individual observes behaviours in others, such as crying and laughing. They are thought to be one of the cornerstones of empathy.²⁸ When observing behaviour, mirror neurons create an experience in the observer akin to the behaviour they are observing. This is one reason people cry in movies or when a loved one is hurting. Therefore, supervisors who keep calm and kind during a crisis can take advantage of the mirror neurons of their employees. Calm begets calm, panic begets panic.

Conversely, CISOs may adopt their C-suite's negative thinking and communication style born of a sense of urgency and frustration felt by key stakeholders. This can lead a CISO to

become overly aggressive, belligerent, uncooperative and even plain rude or verbally abusive to their team. The CISO may become completely divested of a neuroscience-based mindset and instead exacerbate the situation by adding stress-induced interpersonal conflicts to the larger crisis. In as much as the CISOs in these circumstances have allowed themselves to become victims of upper management's own conflict, they become perpetrators of their trauma upon other members of their team — this is to say nothing of the wasted resources when conflicts between the team fuel recovery delays.

To minimise the potential negative effects of mirror neurons, a CISO who is the voice of reason, kindness and calm will inevitably de-escalate tensions. This concept is not at odds with the need for efficiency in emergency response. Some of the most admired leaders are those who maintain kindness and calm during crises while still inspiring quick and effective action. This frame of mind protects the CISO, as well, because inordinate amounts of stress can have deleterious effects on mental and physical well-being. From a neuroscience perspective, acquiring excess stress from others can actually kill one's own brain cells.²⁹

In times of high stress, it is important to take a moment to plan, and communicate that plan with your team to move forward with a mindful, well-executed response. One way to do this is to make what Gary Klein calls a 'premortem'.³⁰ This is also known as prospective hindsight, where one considers what could go wrong and creates a process for shoring up any of these issues prior to anything going awry. Neuroscientist Daniel Levitin also speaks to this process in his TEDx Talk entitled 'How to stay calm when you know you will be stressed'.³¹

FINAL THOUGHTS

Implementing a neuroscience-based approach to cyber security preparedness,

breach mitigation and team performance can be overwhelming for internal resources such as human resources (HR) and training departments. Professional consultants may very likely be necessary to obtain an objective report of areas of improvement, conflict resolution system designs and team training. An important part of running a successful organisation is to know when to consult outside experts. Regardless of an organisation's mission, the subconscious brain runs the show. It can run it well, given some stress-free space and time, or it can rebel, producing fear-based survival responses. Understanding this alone is an excellent beginning to organisational longevity.

References

1. Occupational Information Network (O*NET), 'Work Styles: Street Tolerance', available at <https://www.onetonline.org/find/descriptor/result/1.C.4.b> (accessed 18th May, 2023).
2. Cimpanu, C. (February 2020), 'Average tenure of a CISO is just 26 months due to high stress and burnout', ZDNET, available at <https://www.zdnet.com/article/average-tenure-of-a-ciso-is-just-26-months-due-to-high-stress-and-burnout/> (accessed 18th May, 2023).
3. Nominet (February 2020), 'The CISO Stress Report, Life Inside The Parameter One Year On', available at https://media.nominetcyber.com/wp-content/uploads/2020/02/Nominet_The-CISO-Stress-Report_2020_V10.pdf (accessed 18th May, 2023).
4. Zip Recruiter (January 2023), 'CISO Salary', available at https://www.ziprecruiter.co.uk/?utm_source=zr-go-redirect#:~:text=How%20much%20does%20a%20CISO%20make%3F%20As%20of,works%20out%20to%20be%20approximately%20%2493.58%20an%20hour. (accessed 18th May, 2023).
5. The American Institute of Stress (April 2021), 'The good stress: How eustress can help you grow', available at <https://www.stress.org/the-good-stress-how-eustress-helps-you-grow> (accessed 18th May, 2023).
6. Shaozheng, Q., Hermans, E. J., Marle, H. J. F. van, Luo, J. and Fernandez, G. (2009), 'Acute Psychological Stress Reduces Working Memory-Related Activity in the Dorsolateral Prefrontal Cortex', *Biological Psychiatry*, Vol. 66, No. 1, pp. 25–32.
7. Gimmig, D., Huguet, P., Caverni, J. P. and Cury, F. (2006) 'Choking under Pressure and Working Memory Capacity: When Performance Pressure Reduces Fluid Intelligence', *Psychonomic Bulletin & Review*, Vol. 13, No. 6, pp. 1005–1010.

8. Kim, J. J. and Diamond, D. M. (2002) 'The Stressed Hippocampus, Synaptic Plasticity and Lost Memories', *Nature Reviews Neuroscience*, Vol. 3, No. 6, pp. 452–462.
9. Abramson, L. Y., Seligman, M. E. P. and Teasdale, J. D. (1978), 'Learned Helplessness in Humans: Critique and Reformulation', *Journal of Abnormal Psychology*, Vol. 87, pp. 49–74.
10. Waldman, M. and Newburg, A. (2012), *Words Can Change Your Brain*, Plume Books, New York.
11. Ose Askvik, E., Weel, F. R. (Rudd) van der and Meer, A. van der (2020), 'The Importance of Cursive Handwriting Over Typewriting for Learning in the Classroom: A High-Density EEG Study of 12-Year-Old Children and Young Adults', *Frontiers in Psychology*, Vol. 11.
12. Eagleman, D. (2011), *Incognito: The Secret Lives of the Brain*, Pantheon Books, New York.
13. Pillay, S. (2017), *Tinker Dabble Doodle Try*, Ballantine Books, New York.
14. Fattering, S., Beukelaar, T. T. de, Ruddy, K. L., Volk, C., Heyse, N. C., Herbst, J. A., Hahnloser, R. H. R., Wenderoth, N. and Huber, R. (May 2017), 'Deep sleep maintains learning efficiency of the human brain', *Nature Communications*, Vol. 8, No. 15405.
15. Sanders, K., Osburn, S., Paller, K. A. and Beeman, M. (October 2019), 'Targeted Memory Reactivation During Sleep Improves Next-Day Problem Solving', *Psychological Science*, Vol. 30, No. 11, pp. 1616–1624.
16. Moen, P., Kelly, E. L., Fan, W., Lee, S-R., Almeida, D., Kossek, E. and Buston, O. M. (2016), 'Does a Flexibility/Support Organizational Initiative Improve High-Tech Employees' Well-Being? Evidence from the Work, Family, and Health Network', *American Sociological Review*, Vol. 81, No. 1.
17. Johannsen, R. and Zak, P. (May 2020), 'Autonomy Raises Productivity: An Experiment Measuring Neurophysiology', *Frontiers in Psychology*, Vol. 11.
18. Milton, C. C. (April 2018), 'Fear Shrinks Your Brain and Makes You Less Creative', *Forbes*, available at <https://www.forbes.com/sites/carolyncenteno/2018/04/18/fear-shrinks-your-brain-and-makes-you-less-creative/?sh=53771b8c1c6d> (accessed 18th May, 2023).
19. Kuyatt, A. (2011), 'Managing for Innovation: Reducing the Fear of Failure', *Journal of Strategic Leadership*, Vol. 3, No. 2, pp. 31–40.
20. *Ibid.*
21. Meier, S. (2017), 'Feedback Is the Key to Growth, Motivation and Company Strength', available at <https://workology.com/feedback-is-the-key-to-growth-motivation-and-company-strength/> (accessed 18th May, 2023).
22. DeSouza, K., Dombrowski, C., Awazu, Y. and Baloh, P. (2009), 'Crafting Organizational Innovation Processes', *Innovation, Organization & Management*, Vol. 11, No. 1, pp. 6–33.
23. Rock, D. (2006), *Quiet Leadership*, HarperCollins Publishers, New York.
24. Tanovic, E., Gee, D. G. and Joormann, J. (January 2018), 'Intolerance of uncertainty: Neural and psychophysiological correlates of the perception of uncertainty as threatening', Yale University, available at http://candlab.yale.edu/sites/default/files/publications/TanovicGeeJoormann_2018.pdf (accessed 18th May, 2023).
25. Porath, C. and Erez, A. (2007), 'Does Rudeness Matter? The Effect of Rudeness on Task Performance and Helpfulness', *The Academy of Management Journal*, Vol. 50, pp. 1181–1197.
26. Shellenbarger, S. (August 2012) 'When the Boss Is a Screamer', *Wall Street Journal*, available at <https://www.wsj.com/articles/SB10000872396390444772404577589302193682244> (accessed 18th May, 2023).
27. Ury, W. and Fisher, R. (1981) *Getting to Yes*, Penguin Books, London.
28. Eagleman, D. (2015), *The Brain*, Pantheon Books, New York.
29. Thomas, R. M., Hotsenpiller, G. and Peterson, D. A. (2007), 'Acute psychosocial stress reduces cell survival in adult hippocampal neurogenesis without altering proliferation', *Journal of Neuroscience*, Vol. 27, No. 11, pp. 2734–2743.
30. Klein, G. (August 2007), 'Performing a Project Premortem', *Harvard Business Review*, available at <https://hbr.org/2007/09/performing-a-project-premortem> (accessed 18th May, 2023).
31. Levitin, D. (2007), 'How to stay calm when you know you will be stressed', TED/YouTube, available at <https://www.youtube.com/watch?v=8jPQjjsBbIc> (accessed 18th May, 2023).