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**“SOCIETY AT RISK – HUNTING BLACK SWANS
AND TAMING BLACK ELEPHANTS”**

Introduction

Disruptions are disturbances to the normal flow of life – a cyber-attack, a new virus, a violent storm, civil unrest, economic turbulence, and so on. They happen because we live in an interconnected world. What happens in one part of the world can affect other parts of the world – the so-called butterfly effect which postulates that the flap of a butterfly’s wings in Brazil can set off a tornado in Texas. At the core of the butterfly effect is the concept that small disturbances can have large effects.

Globalisation increases and intensifies connections, as does the Internet. Urbanisation is accelerating and densely connecting people as never before. Because of these connections, events and actions interact with each other in complex ways, to produce effects that are emergent, and often surprising and disruptive. As connections intensify, the frequency of disruptions will increase and the amplitude of their impact will grow.

Disruption is a Certainty

Singapore's founding Prime Minister, the late Mr Lee Kuan Yew, said, "The past was not pre-ordained, nor is the future. There are as many unexpected problems ahead as there were in the past." It sounds like a truism, but it is the reality. And some of these "unexpected problems" – or disruptions – will be of the *black swan* variety, rare, hard-to-predict events with large impact.

If disruption is a constant in our world of volatility, uncertainty, complexity and ambiguity (or VUCA), then it behoves us to spend time thinking about how individuals, organisations, societies and countries can respond. In our VUCA world, the pre-emption and prevention of disruption, despite our best efforts, cannot be guaranteed. The name of the game therefore shifts from imperviousness to disruption, to recovering, and even growing, after being disrupted.

Resilience

Judith Rodin, the President of the Rockefeller Foundation and who launched the 100 Resilient Cities initiative of which Singapore is a part, provides a good definition of "resilience". She writes, "Resilience is the capacity of any entity – an individual, a community, an organization, or a

natural system – to prepare for disruptions, to recover from shocks and stresses, and then to adapt and grow from a disruptive experience.”

Our Blind Spots

Many disruptions – natural disasters, pandemics, even financial crises and political upheavals – do not fall into the category of black swans or Donald Rumsfeld’s *unknown unknowns*. Instead more often than not, they are either *known knowns*, or *known unknowns*. Once upon a time, all disasters – storms, floods, earthquakes, volcanic eruptions – arrived without warning. Today, modern science helps to predict such cataclysms with increasing accuracy. Many disruptions can now be assigned probabilities. This ought to lead governments to take precautionary measures. But often they do not.

The reasons why they do not are several, centred on a special type of failure that all human beings are prone to: these are our cognitive biases or blind spots. It is deeply embedded in our human nature.

Hyperbolic Discounting

In his book “Collapse”, the polymath Jared Diamond alludes to the inability to read trends or to see behind the phenomenon of “creeping normality”. Things get just a little bit worse each year than the year before, but not bad enough for anyone to notice. For example, our tardy response to climate change is a text-book case study of this phenomenon.

Indeed, people often have a hard time properly ascertaining the present value of events that will take place in the future. This tendency to discount the future – to place less emphasis on future risks and contingencies, and instead to place more weight on present costs and benefits – is a common cognitive bias known among behavioural economists as *present-biased preferences* or *hyperbolic discounting*.

The institutional position that political leaders occupy discourages them from spending time worrying about a problem that will – hopefully – occur only after they leave office. Democratic governments are often catatonic in the face of problems whose consequences are expected to be felt only in the distant future. At the risk of generalisation, governments tend to focus on immediate problems and priorities related to the electoral cycle. They would rather defer expenditure on something that may or may not happen.

The Black Elephant

This leads me to a new member of my menagerie, the *black elephant*.

What is the black elephant?

The black elephant is a cross between a *black swan* and the *elephant in the room*. The black elephant is a problem that is actually visible to everyone – the proverbial elephant in the room – but no one wants to deal with it, and so

they pretend it is not there. When it blows up as a problem, we all feign surprise and shock, behaving as if it were a black swan.

In 2013, a small Ebola outbreak in Guinea ballooned into an international health emergency in 2014. Over 10,000 people died, and the economic cost to the affected nations in West Africa was estimated in the billions of dollars. But it could have been nipped in the bud if appropriate and aggressive actions – including by the World Health Organisation – had been taken at the start. Arguably, this is an example of a black elephant. Unfortunately, the tendency of the human mind is to underestimate both sudden crises, as well as slow burn issues. The result is organisational hesitation: until events reach crisis proportions, no one takes any action.

The SARS Case Study

On 25 February 2003, the SARS virus entered Singapore through three women who had returned from Hong Kong with symptoms of atypical pneumonia. They had stayed at the Hotel Metropole in Hong Kong, where a doctor from Guangzhou, China, was also staying. He was afflicted with what became known as the Severe Acute Respiratory Syndrome, or SARS, which is thought to have emerged in Guangdong Province sometime in November 2002.

The virus then spread with frightening speed through the hospital system. It confounded our medical authorities in the beginning. They did not know how

the virus spread, and why it spread so aggressively. The fatality rate was shocking. By the time the SARS crisis was declared over in Singapore, 33 people had died out of the 238 who had been infected.

SARS was a *black swan* for Singapore. Not only was it a big shock, but it was also a very frightening time for Singaporeans. Then-Prime Minister Goh Chok Tong told the BBC in April 2003 that this was a “crisis of fear”. Overnight, visitor arrivals plunged and the entire tourism industry came to a grinding halt. SARS severely disrupted the Singapore economy, leading to a contraction during the second quarter of that year.

There will be more of such crises. When the normal flow of life is disrupted, societies will need resilience to cope.

A Resilient Response to SARS

Singapore’s response to SARS is well-documented. One of the most critical early decisions was to designate SARS a national crisis, and not just a public health problem. This meant that all the resources of government – and in fact of the nation – could be harnessed in a “Whole-of-Government” approach to tackle the *wicked problem* of SARS. The SAF put an entire Army division at the disposal of the health authorities. The Police did likewise. Within weeks, MINDEF’s Defence Science & Technology Agency (DSTA) and DSO National Laboratories developed a contact tracing system, as well as the infrared fever

screening system now adopted around the world. Such innovations also epitomise resilience during a crisis.

Efficiency vs Resilience

But this could not have been achieved if the government had been organised with an obsessive focus on efficiency and optimisation. These are well and good – if everything goes according to plan. But things rarely go as planned. Many times, we cannot predict when disruptions will occur. Nicholas Nassim Taleb – the statistician and risk analyst who first coined the term “black swan” – notes that when disruptions occur in overly-optimised systems, “errors compound, multiply, swell, with an effect that only goes in one direction – the wrong direction.”

So, to deal with disruptions, governments must go beyond an emphasis on efficiency. Lean systems that focus exclusively on efficiency are unlikely to have sufficient resources to deal with unexpected shocks and volatility. As Taleb notes, “Redundancy is ambiguous because it seems like a waste if nothing unusual happens. Except that something unusual happens – usually.”

We have to ask ourselves a key question. If disruption is inevitable, then how can we develop a system that is resilient to such shocks?

The answer to this question determines which country, especially those like Singapore, with no natural resource, is going to stay on a sustainable

trajectory over the long term. The ability to quickly and decisively respond to crises and disruptions helps to manage uncertainty arising from our VUCA world.

This is not an argument for establishing bloated and sluggish bureaucracies. But one important idea is to have a small but dedicated group of people to think about the future, who will identify contingencies to be planned for, and who will seek out emerging risks over the horizon to be managed. The skill-sets needed are different from those required to deal with short-term volatility and crisis. Those charged with thinking about the future should be allocated the bandwidth to focus on the long-term without getting bogged down in day-to-day routine. This will not eliminate shocks. But by improving the ability to anticipate such shocks, their frequency and impact might actually be reduced. In turn this will help make governments and nations more resilient.

Another part of the answer is the availability of reserves – if not reserves in natural resource, then other kinds of national reserves built from prudent planning.

The SAF and its supporting organisations like DSTA and DSO are reserves of the nation in the sense that they are an insurance premium for a contingency that hopefully will never occur. But without that “fat” in the system, it is doubtful that Singapore would have been able to respond to the SARS crisis as it did in 2003.

Singapore's government is also committed to building ample national reserves from the savings and surpluses of the government budget, giving the country a buffer to draw on in times of crisis.

During the 2007-2008 global financial crisis, the Singapore government for the first time actually drew on the national reserves in the form of a S\$20.5 billion Resilience Package. This was primarily aimed at preserving and enhancing business competitiveness as well as promoting job retention, during a period of great uncertainty. A key aspect involved encouraging firms not to retrench workers, but to support retraining programmes, as well as temporary part-time arrangements. Once the world economy began to recover, Singaporean firms were able to respond with alacrity and speed to "catch the winds" of global economic recovery.

"SkillsFuture" is another example of how Singapore tries to "future-proof" the workforce by establishing a norm of lifelong learning, and by creating the infrastructure to make continuing education possible. Because it is not always possible to predict manpower trends accurately, having a system in place to encourage upgrading, and a culture that encourages lifelong learning, will help Singapore and Singaporeans ease through changes and uncertainties in the employment landscape. It is part of a larger effort to ensure that Singapore remains resilient in the face of uncertainty and future shock.

Whole-of-Government

The Whole-of-Government approach adopted for SARS had a compelling logic. People from different organisations, both from *within* and *outside* government, came together to pool their knowledge in order to discover and develop solutions for dealing with the deadly SARS outbreak, and to combine their resources to meet the demands of the crisis.

But while the Whole-of-Government approach may be a logical imperative, it is not easily achieved. Governments, like any large hierarchical organisation tend to optimise at the departmental level rather than at the Whole-of-Government level. Whole-of-Government responses to contingencies must be practised, otherwise the “muscle” of the government machinery becomes flabby and atrophies from lack of use. That is why, every now and then, in Singapore, there are exercises on the ground, involving not just the authorities and uniformed groups, but even members of the public – a Whole of Nation approach.

“We Are All Living in the Same Polder”

Jared Diamond recounts the story of the Netherlands, where one-fifth of the total land area is below sea level, reclaimed from the sea over the centuries, and protected by a complex system of dykes and pumping operations. These reclaimed lands are called “polders”. The Dutch have a clear sense that “we are all living in the same polder, and that our survival depends on each other’s survival”. This is a country that has developed a resilient response to a constant

existential threat – flooding – through a combination of Whole-of-Nation solidarity and smart engineering.

Overshooting vs Undershooting

During the SARS crisis in Singapore, the authorities did many things that had no precedent, including contact tracing, temperature screening, and home quarantine. As the saying goes, “Necessity is the mother of invention.” For example, electronic monitoring bracelets were issued in order to enforce quarantine orders. A security company, CISCO, was deployed to keep track of people quarantined at home. Initially, these measures were predictably denounced in the western press as “draconian”. But later on, many of these measures were quietly adopted by other cities afflicted by SARS. Being prepared to take such aggressive measures was a key part of an effective response to the SARS crisis.

In his April 2003 BBC interview, then-PM Goh explained, “I’m being realistic because we do not quite know how this will develop. This is a global problem and we are at the early stage of the disease. If it becomes a pandemic, then that’s going to be a big problem for us ... I’d rather be proactive and be a little *overreacting* so that we get people who are to quarantine themselves to stay at home. The whole idea is to prevent the spread of the infection.”

In other words, when dealing with serious disruptions where there is a lot of uncertainty, it is often better to *overshoot* rather than *undershoot*.

Trust

But another issue was at play: fear. It rears its head not only during deadly epidemics. Even in financial crises, as in 2008 after Lehman Brothers collapsed, fear can go viral. As Franklin Delano Roosevelt said during the Great Depression in 1933, “the only thing we have to fear is fear itself.”

The dissemination of trusted information is an important way of managing fear. During the SARS outbreak, Singapore took a transparent approach. For example, the government gave the World Health Organisation (WHO) unfettered access to information. Every afternoon during the crisis, all the data and information collated from the previous 24 hours was presented at a conference chaired by the Director of Medical Services. WHO observers attended it. They had access to the same raw data as Ministry of Health (MOH) officials.

The government also laid bare the uncertainties and risks during SARS, even as other countries sought to reassure their citizens that SARS was under control. Singaporean leaders told people not only what they knew, but also what they did not know. They shared their concerns. They avoided providing false assurances.

This diffusion of trusted information – transparency, laying bare uncertainties and acting with empathy – built on underlying trust, not just of the people in the government, but also of the government in the people.

Singaporeans trusted the government for its effectiveness and integrity. The government trusted Singaporeans to deal with the uncertainty as the SARS outbreak unfolded. This two-way trust, between the government and the people, formed a deep source of national resilience in Singapore during SARS.

MERS in South Korea

If SARS was a black swan for Singapore, then arguably the Middle East Respiratory Syndrome (or MERS) outbreak in 2015 was more of a *black elephant* for South Korea. Because by then, health authorities around the world had developed mechanisms to deal with atypical novel respiratory diseases, after experiences with SARS, swine flu and bird flu. Furthermore, MERS had already emerged some years earlier, in 2012, in Saudi Arabia, so the condition and its dangers were not unknown. In fact, because of its high morbidity rate which stood at around 40%, authorities around the world were on high alert.

On 20 May 2015, South Korea reported its first imported case of MERS. By the time Seoul declared that outbreak over, nearly 17,000 people had been quarantined, 186 people had been infected and 36 people died. Thousands of schools had been closed. The number of tourists in June 2015 fell 40% from a year earlier.

Faced with a barrage of questions in early June 2015, the Korean Center for Disease Control and Prevention (KCDC) closed its Twitter account to the public, only to re-open it the following day. As the *Korea Times* put it in an editorial, “adding to mounting public concerns was a lack of information – the exact area affected, the list of hospitals, the first patient and those infected by him – leading to the spread of groundless rumours and swelling unfounded fears in a vicious circle.”

So although the outbreak was eventually brought under control, the government was criticised for its slow response to the outbreak, and for stoking fears by failing to effectively communicate public health risks.

Antifragility

Judith Rodin says that, “As you build resilience ... you become more able to prevent or mitigate stresses and shock you can identify, and better able to respond to those you can’t predict or avoid. You also develop greater capacity to bounce back from a crisis, learn from it, and achieve revitalization. Ideally, as you become more adept at managing disruption and skilled at resilience building, you are able to create and take advantage of new opportunities in good times and bad. That is the *resilience dividend*. It means more than effectively returning to normal functioning after a disruption, although that is critical. It is about achieving significant transformation that yields benefits even when disruptions are not occurring.”

In the same vein, Nicholas Nassim Taleb introduced another term, “antifragile”. His proposition is that if fragile things break when exposed to stress, then something that is the opposite of fragile would not just hold together when put under pressure. Instead, it would actually get stronger. He calls this the quality of “antifragility”.

Jurong Island as an Antifragile Response

Antifragility reminds me of early efforts to strengthen our defences against the threat of terrorism, following 911, and the uncovering of the Jemaah Islamiyah terrorist network in Singapore in December 2001.

One urgent matter was to beef-up the protection of Jurong Island, a vast petrochemical complex that had been designed for safety, but not for high level security. But the responsible authorities initially balked at the expense. Eventually they coughed up the money, albeit reluctantly. Not only did this dramatically strengthen the security of Jurong Island, but the security measures also became a selling point to investors, in a world trying to cope with the rising threat of global terrorism. I would argue that it was an *antifragile* response.

The Value of Tradition and Ritual

Taleb also makes the case that human traditions have antifragility embedded into them. However, in today’s modern world, many of these traditions seem to many either irrelevant or archaic. But they developed for a

reason and survived for so long because they serve some purpose. According to Taleb, traditions are often time-tested heuristics that make living in a volatile and uncertain world manageable.

Several years ago, I had the privilege of visiting Port Blair, the capital of the Andaman and Nicobar Islands, which at the time had restricted access. During that visit, we were briefed on the unique flora and fauna of the Andamans. Within that unique eco-system, I remember that North Sentinel Island stood out for me. It is a tiny island occupied by a Stone Age tribe that is supposed to indulge in cannibalism. The Indians, for good reason, steer clear of the island.

Not long after my visit, the 2004 Boxing Day tsunami washed through the Andaman Islands, and swept over North Sentinel Island. An Indian friend told me that some days later, the Indians flew a helicopter over the island without landing – a prudent precaution against a close encounter with a hungry tribe – and discovered to their surprise that the tribe had survived the catastrophe that had killed two thousand in the Andamans. They surmised that the tribe, through millennia, had developed an ability to read the warning signs of an impending tsunami – perhaps the waters turning a different colour, or the birds and animals getting disturbed – and then to flee to the high point at the centre of the island. If this surmise is correct, then tsunamis must have occurred in that area in the past.

The knowledge of these warning signs seems to be part of an oral tradition transmitted from generation to generation, much like more sophisticated examples of oral tradition such as the Iliad and the Odyssey, the Three Kingdoms, and the Ramayana and Mahabharata, whose origins go back thousands of years. Such knowledge is obviously tacit, because tsunamis occur very infrequently in a place like North Sentinel Island.

The Black Elephant of Terrorism

Let me turn to another example at this point. France is no stranger to terrorism, terrorism inspired by a wide range of causes: Corsican nationalism, French nationalism, the Palestinian cause and Algeria.

But I remember that even before 911, the French security authorities were most concerned about what they termed the “third generation problem”. The problem was explained to me this way. The first generation of migrants from North Africa were grateful that they were able to find a home in France and an opportunity to a life better than the hard-scrabble one they had left behind. The second generation – their children – imbibed from their parents a sense of the benefits that migration had provided them. But it was their children’s children – the third generation – who were the big challenge. They had no memory of their original homeland, but felt alienated in their country of birth, France. But the authorities felt helpless to do anything about the problem. They did not

have the resources – nor were they allocated the resources – to deal with the problem, which at the time must have seemed like an abstraction.

But of course, with the rise of radical Islam and the emergence of the Islamic State, the problem has come home to roost. In the last two years, France experienced the 7 January 2015 attack on the offices of *Charlie Hebdo*, the satirical newsweekly. 17 people were killed. Then on 13 November 2015, a rampage of shootings and suicide bombings in Paris killed 130 people. On Bastille Day this year, a 19-tonne truck rammed into crowds in Nice killing 86 people.

The French have shown remarkable resilience, even defiance, in the face of these attacks. Soon after the *Charlie Hebdo* shooting, “*Je suis Charlie*” became a powerful rallying cry. It symbolised support for the freedom of speech and freedom of the press. It was used as a hashtag on Twitter, and within two days, it had become one of the most popular news hashtags in Twitter history.

Yet underneath the symbolic rhetoric, the fabric of society itself may be tearing. In the month after the *Charlie Hebdo* attack, there were at least 160 attacks on Muslim people and the Muslim community. This was more than the total number of attacks in 2014.

To be sure, these tensions did not develop only after the attacks. In October 2005, two French youths of Malian and Tunisian descent were electrocuted as they fled the police in a Paris suburb. Nearly three weeks of riots followed, causing €200 million worth of damage and injuring 126 policemen and firemen.

Longer-term issues are clearly at play here: social and economic exclusion, racial discrimination, and the capacity of the secular state to integrate cultural and ethnic diversity.

This has not been lost on the political actors in France. Nicolas Sarkozy, a former president, vowed both to ban the wearing of the veil in public and to take up the war against *burkinis* with new zeal, during his campaign for the 2017 presidential elections. Speaking after the Nice attacks, Marine Le Pen, leader of the National Front, said, “The war against the scourge of Islamic fundamentalism has not begun. It is urgent now to declare it.”

In having to face down the threat of terrorism, the question is whether France’s response is merely reactive, or whether it exhibits both resilience and antifragility. As I noted earlier in the definition by Judith Rodin, a resilient society not only returns to the state it was at before the disruption; it also adapts and grows. Similarly, an antifragile society reaches a new state – almost like a muscle that, tested by stress, grows stronger. For example, an antifragile response might include the promotion of social integration.

Terrorism in Singapore

Singapore has had its own brushes with terrorism. One was the 1974 hijack of Laju Ferry by members of the Japanese Red Army and the Popular Front for the Liberation of Palestine. Then on 7 December 2001, Singapore announced the detention of 13 members of the hitherto unknown Jemaah Islamiyah (or JI) terrorist network, dedicated to the establishment of a pan-Islamic caliphate in Southeast Asia. Since then, more than 60 people have been detained under the Internal Security Act for terror-related activities. Singapore has also beefed up security at soft targets.

But besides these concrete measures, the government has also taken care to ensure that the Muslim community remains integrated into the broader society, rather than becoming alienated from it.

The cornerstone of Singapore's counter-terrorism strategy is a community response plan. This enhances community vigilance, community cohesion and community resilience. Singapore has built networks of community leaders and influencers by forming the Inter-Racial and Religious Confidence Circle (IRCC). These leaders have helped strengthen the understanding and ties between different races and religions. For the Muslim leaders, they not only speak out against those who distort Islam, but also use the media, mosque and madrasah to assert mainstream Islamic values.

Singapore is also one of only six countries with structured programmes to rehabilitate and re-integrate terror detainees into society. The Religious Rehabilitation Group (RRG) was set up in 2003 after the JI terror plots were thwarted. RRG counsellors, all of them trained religious scholars and teachers, have helped terror detainees understand how they had been misguided by radical ideologues. The counselling sessions also extend to the family members of detainees. Every released terror-related detainee in Singapore has undergone counselling as part of rehabilitation. Most have returned to their families, found jobs, and integrated back into Singapore society.

The RRG also builds social resilience through outreach. It organises conferences, dialogues and briefings to educate the community – including the schools and madrasahs – about key Islamic concepts which have been misinterpreted and misrepresented by terrorist and extremist groups such as JI, Al-Qaeda and ISIS.

Just as trust between the government and citizens in Singapore predated SARS, strengthening the social fabric has been a key strategy since independence.

Where migrants may naturally concentrate around the *banlieues* of Paris, Singapore takes an interventionist approach to promote social mixing. It uses quotas to avoid the build-up of racial enclaves in public housing estates. It has

introduced a raft of policies to ensure that growth is inclusive: investments in public education, grants for skills training, and tax credits for the working poor.

Strengthening the social fabric also means building antifragility through simulations, designed not just to hone citizens' and agencies' instincts of how to respond in crises, but also to build confidence that we *can* overcome crises.

This psychological strengthening is part of what Singapore calls *Total Defence*.

The most recent initiative in this vein is *SGSecure*. In addition to raising awareness, SGSecure also runs exercises. Recent examples include a simulated crisis in Chong Pang neighbourhood, in northern Singapore, in September, and a counter-terrorism exercise, dubbed Heartbeat, at the performing arts centre, the Esplanade.

Conclusion

Terrorism and disease outbreaks are about diffusion—of ideologies and pathogens. Both can be black elephants – risks that societies typically put off preparations, or avoid talking about altogether. The specific measures to secure installations or quarantine patients are necessary to helping societies bounce back from disruptions. The softer aspects – the diffusion of trusted information and weaving a tough and supple social fabric – are equally important, both in overcoming disruptions and ensuring that society survives. The underlying layer of trust and cohesion is what societies need to build, in times of

tranquility, even as they learn to hunt down black swans and to tame the black elephants that will surely visit societies and countries from time to time.

We may not be able to pre-emptively hunt down all the animals in the menagerie of risk, but we can at least learn to live with them. This will be the product of good governance, and result in better and more resilient societies for all.

Thank you.

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