

# Editorial

Since our independence in 1965, Singapore has come a long way. We have built ourselves up to become a strong and independent nation with a cohesive society committed to protect and defend our home and way of life. However, the external environment has changed – it has become increasingly volatile and more complex. The security challenge not just to Singapore but globally is something that we have to be cognisant of and be alert to. Terrorist threats like the suicide bombings in Brussels, the bomb and gun attacks in Jakarta, unconventional threats like piracy as well as the on-going disputes in the South China Sea—these are all stark reminders of the perils that can affect and impact us. Let us never take our present peace and stability for granted. We must remember that a strong defence force is vital for our security and independence. As Chief of Defence Force, MG Perry Lim said, “The strategic vulnerabilities of a small nation will always remain unchanged, and a strong SAF is the ultimate guarantor for Singapore’s peace and security.”<sup>1</sup>

In this issue of *Pointer*, we offer a varied list of essays which include a discussion on our deterrence measures and the development of the SAF from 1<sup>st</sup> generation army to a highly sophisticated 3<sup>rd</sup> generation fighting force, as well as an analysis on the maritime security challenges faced by countries in the Indo-Pacific region. There is also a discourse about how a state can ‘strategically bridge’ its political goals with its military decision planning. Other topics include a presentation on 3D printing as an innovative and revolutionary piece of technology with potentially significant applications for the military, an exploration of the Lanchester Square Law<sup>2</sup> and its links to the concept of Relative Combat Power (RCP) and finally, an examination of cognitive biases and how it might affect military decisions at the strategic and operational levels.

In the essay, ‘The Strategy Bridge: Linking the Tactical and Operational Battles to the National Interests’, LTC Eng Cheng Heng, contends that in order to effectively achieve its political goals, a state has to strategically bridge its political goals with its military decision planning. He discusses some of these ‘strategy bridges’

employed throughout history and examines case studies of how various wartime figureheads have aligned their states’ overall political goals with its military decision, with varying levels of success. Through these case studies, he notes that military tactical and operational level victories do not necessarily equate to a nation’s political victory.

MAJ Lim Han Wei’s essay is entitled, ‘Code for Unplanned Encounters at Sea and Maritime Stability in the Indo-Pacific’. In his essay, MAJ Lim talks about the maritime security challenges that are faced by countries in the Indo-Pacific region and discusses the possible policy measures that can be put in place to help ease tensions between countries involved in territorial disputes. Due to the benefits that the Indo-Pacific region presents, it is thus subjected to maritime security threats. If left unattended, the tensions have the potential to escalate into great conflicts. Throughout the essay, MAJ Lim maintains the stand that despite the interests of individual countries, there is a need for everyone to come to a common consensus and work together so as to maintain peace and stability in the region.

The essay, ‘Is the SAF’s Defence Posture Still Relevant as the Nature of Warfare Continues to Evolve?’ is written by MAJ Bernard Tay. According to MAJ Tay, in the years following her independence, Singapore has had to build up a credible military force to deter and defend threats to its security, territorial integrity and sovereignty. He explains the various changes of our deterrence measures and the evolutionary stages of our SAF—from a 1<sup>st</sup> generation army to the highly sophisticated 3<sup>rd</sup> generation fighting force we know today. In his essay, MAJ Tay also aims to evaluate how the SAF’s defence policies have transformed over the years to better adapt to the recent unconventional threats our nation faces such as cyber-attacks and transnational terrorist attacks. Finally, he suggests how the SAF can better collaborate with Homefront agencies, government ministries and international bodies to be more effective in deterring such threats, as well as sustaining a stronger and more credible deterrence force.

In their essay, '3D Printing – Revolutionising Military Operations', ME5 Calvin Seah Ser Thong and ME4 Choo Wei En, claim that 3D printing has proven to be an innovative and revolutionary part of technology with potentially significant applications for the military. In this essay, the authors explore the technology, applicability and challenges before proposing a framework for our army to undertake 3D printing. Firstly, they provide a brief overview of the technology behind the printing process and the various printing methods. They then highlight the numerous possible military applications of 3D printing, including the production of military equipment both during peacetime and on the battlefield, for immediate use. Other uses include protective armour for soldiers, prosthetics, surveillance tools and even food. However, given the nascent stage of technology, the authors highlight that there are challenges that need to be addressed, such as Intellectual Property rights, liability, occupational health and safety, cost and quality standards. The authors conclude by suggesting a framework to mitigate these challenges, which includes creating a task force to study the feasibility of this technology and disseminating 3D printing-related knowledge. In the authors' opinion, there is no doubt that the prudent use of 3D printing technology will yield innumerable benefits for our army.

In our Tech Edge section, we are featuring the essay, 'The Lanchester Square Law: Its Implications for Force Structure and Force Preparation of Singapore's Operationally-Ready Soldiers' by LTA(NS) Philip Chan. In this essay, LTA(NS) Chan explores the Lanchester Square Law and links it to the concept of RCP, seeking to understand whether the quality of soldiers matters more than their quantity. LTA(NS) Chan shows the implications of the Lanchester Square Law for tactics in combat, by exploring

test-cases of battles between a seven-man and ten-man section. Next, he explains how Admiral Lord Nelson's tactics at the Battle of Trafalgar were in fact an application of the Lanchester Square Law. He feels that the importance of numbers has implications for the force structure of our army and the advantage of an opponent's numbers needs to be compensated by a significant increase in the quality of our own forces. In his opinion, our commanders should maintain a high baseline of quality in peacetime, as Singapore depends heavily on both the quantity and quality of our Operationally-Ready servicemen. Only then can the SAF harness the advantages of quantity and quality, enhanced by detailed and coordinated planning, to secure a swift and decisive victory over any aggressor.

Our View Point essay entitled, 'Cognitive Biases: The Root of Irrationality in Military Decision-Making' is written by CPT Chen Jing Kai. In this essay, CPT Chen explores the different types of military decision-making by operational staff and how it might affect the rationality of their assessment of the current situation. He then provides examples for each different type of bias which include overconfidence bias, confirmation bias, disconfirmation bias, availability bias, sunk cost fallacy and anchoring bias and proposes ways to mitigate such biases, so that the SAF can be more accurate in its assessments and thus make better decisions. CPT Chen highlights that in combination with contextual factors, cognitive biases have been shown to result in starkly inaccurate assessments and therefore poor military decisions at the strategic and operational levels. He concludes that the SAF needs to be cognisant of these biases and to implement strategies to counteract them.

**The POINTER Editorial Team**

## ENDNOTES

1. [http://www.mindef.gov.sg/imindef/press\\_room/official\\_releases/sp/2016/26may16\\_speech.html#.V1eibjWGPIU](http://www.mindef.gov.sg/imindef/press_room/official_releases/sp/2016/26may16_speech.html#.V1eibjWGPIU)
2. [https://en.wikipedia.org/wiki/Lanchester%27s\\_laws#Lanchester.27s\\_Square\\_Law](https://en.wikipedia.org/wiki/Lanchester%27s_laws#Lanchester.27s_Square_Law)

With firearms engaging each other directly with aimed shooting from a distance, a fighting force can attack multiple targets and can receive fire from multiple directions. The rate of attrition now depends only on the number of weapons shooting. Lanchester determined that the power of such a force is proportional not to the number of units it has, but to the square of the number of units. This is known as Lanchester's Square Law.