Wavefront

Professional Certificate in Maritime Security (PCMS)

Our first group is approaching the completion point of the IAMSP courses with good success . This has been a difficult challenge for many, given that this set of courses spans (on average so far) approximately 24 weeks, a bit of a shock from the traditional "everything you needed to know about maritime security in a couple of days" kind of courses. That being said, the candidates will be coming out much more prepared to take on the challenges in the domain.

The IAMSP courses have focused on the context (Maritime Industry and Operations), security design, and the concept of monitoring and compliance (including verification and validation). These principles align closely with a more rigorous approach to maritime security through the use of engineering-derived principles and practices.

Having working through this framework, candidates will move to the more academic and conceptual learning that involves four eight week university-level courses followed by the capstone course. By using a model that looks at maritime security through the viewpoints of geopolitical, economic, environmental, and sociocultural lenses, candidates will be able to relate these into the operations that make up maritime security and see how these different viewpoints influence or even impact each other.

As we move past this point, we completed our first set of interviews with candidates on how to improve our delivery. In response to this, we have established and formalized "office hours" for our instructors that give candidates a 90-minute window to discuss topics with the instructors directly. We have also set in place a practice to keep students active on rolls so that they can receive updates to course materials as they are made.

Inside this issue

Special points of interest

- Our first group of candidates is now entering the final IAMSP set of courses.

- It is now apparent to many that it is not just our infrastructure that needs to change, but also how we manage and oversee that infrastructure that needs to evolve.

Cyber Security in the Maritime Sector

We continue to see improvement on the cyber security front but have seen a trend emerging that warrants attention.

While certain providers are receiving accreditations from various societies, this only offers partial coverage on the cybersecurity front. How the equipment is installed and how it is managed also factors significantly.

With trends showing a strong potential to a "certificate verification" regime becoming more evident, there is a concern that cyber security will simply be verified through the weak regime of checking certificates.

If IMO and contracting governments are serious about cyber security, then there needs to be a frank discussion on including cyber security within Ship and Port Security Plans .

Blindly applying "best practices" may open organizations to risks given the changing threat, operating, and other environments.

Other Implications

Recent meetings in the innovation space have exposed a potential challenge for those seeking support . The lack of clear decisions as to if and when innovators would be expected to enter into programs such as the Public Services Procurement Canada Controlled Goods Program (with its requisite security requirements) creates a situation where companies may invest heavily in the innovation, have significant infrastructure costs imposed upon them, while their market becomes restricted. There is a need for these innovation support programs to be clear as to if and when this kind of requirement comes into play in order not to stifle innovation unintentionally.

Dual Use Technology—The Economic Hazards of Eschewing Due-Use and Navigating the Civilian-Driven Innovation in a Dual Use World.

In the realm of technological advancements, the decision to prioritize civilian applications over dual-use functionality may seem like a straightforward strategy. However, the exclusive focus on civilian use items comes with its own set of economic pitfalls, particularly the risk of losing a significant share of the lucrative military market due to the dual-use label and stringent export regime laws. This article delves into the economic failures and risks associated with developing only civilian use items, potentially excluding industries from a vital and expansive market.

Companies often opt for a civilian-centric approach to innovation, driven by the desire to appeal to a broad consumer base and avoid the ethical concerns associated with military applications. While this strategy may align with corporate values and societal expectations, it carries the inherent risk of overlooking the substantial economic opportunities presented by the dual-use market. The allure of exclusively civilian products may inadvertently lead to missed revenue streams and long-term sustainability challenges.

One of the primary challenges of developing solely civilian use items lies in the dual-use label itself. In an era of heightened security concerns, the dual-use designation triggers suspicions and scrutiny, potentially limiting the export potential of products and hindering access to military markets. This stigma can translate into missed opportunities for collaboration with defence agencies and the exclusion from government contracts, leading to significant economic setbacks.

Changing Face of Naval Warfare

Consider conflict (war) as simply a form of competition between states. Two states with opposing views decide that they are going to impose their view through force. We've seen this approach used by Russia in the Ukraine and other smaller nations shortly before the Ukrainian conflict went mainstream.

While Ukraine presents a rather sharp picture of international conflict, naval forces are increasingly finding themselves in what is often termed the "sub-threshold battlefield." This is where states are still in conflict but the actions do not fall into the understood context of armed intervention and counter-intervention.

While the Ukrainian conflict has been in the limelight, Canadian naval assets in the South China Sea have faced this challenge for some time. For example, a submarine-hunting Canadian helicopter in international waters had flares fired in front of it by a Chinese warplane (CNN, 3 Nov). This is no means limited to Canada. On November 14th, the HMAS Toowoomba had its propellers tangled within a fishing net and sent down divers to free the props after broadcasting the traditional divers-operating and issuing a VHF message. The HMAS ship was approached by the PLAN vessel Ningbo that acknowledged the warning but operates its bow sonar in a manner that led to the injury of several of the divers.

The competition that is ongoing in this area is fairly simple. China is attempting, through might and its operations, to lay claim to much of the South China Sea. This is despite rulings by international tribunals, that have ruled against China's actions, including the 12 July 2016 adjudication in favour of the Philippines.

This kind of confrontation is likely to become the new norm. Operating in grey areas creates challenges for those seeking to respond to this kind of belligerence because of a lack of clarity or even precedence. It is not the only challenge that should raise eyebrows in the naval community.

On "Competition"

Nation states will invariably compete at various levels. They may be limited to trade-related issues or discussions about policy at one level but can escalate to full-scale warfare on the other. It is naïve to think that because many feel that warfare is to be avoided that it is still not possible.

In fact, we need to come to grips with the fact that warfare and the upper end of intensity in conflict is becoming much more complex. Nation states may understand that the impacts of going to full-scale war don't make sense from a cost-benefit analysis but may take other steps to achieve their aims.

We see this illustrated two ways when we look at China and Iran.

China has taken a "whole of society" approach with respect to how it projects its interests. This means that competition may have diplomatic, military, economic, social, and other ramifications.

Iran on the other hand has chosen to use a set of proxies to project its interests. Instead of declaring war and going face-to-face, it has established this network to insulate itself from some of the ramifications.

These are currently grey areas that will need to be addressed in our thinking if we are going to remain relevant and capable of dealing with the modern environment.

Fisheries Management and Maritime Security

Fisheries management has become a hot-button topic as we see the demand for resources increase (particularly out of certain countries), the desire for wealth increase (economic pressures), and a host of other factors.

That being said, the framing of fisheries management as a sovereignty issue (used by some communities to promote their own fisheries) and those seeking to manage the fishery is completely off-base.

The basic issue is how much can people catch out of a fishery, during what season, and should there be limitations on what is caught. Some say that their rights are being infringed upon while others argue economic disparity.

The reality of this is that there is only one stock of fish. The math here is relatively simple. To maintain the fish stock, there need to be enough left to replenish the population to a certain level. Identifying, establishing, and managing this balance is one of the harder aspects of fisheries management.

Where we begin to see arguments and activities where communities begin to ignore this basic premise, then the risk to the overall fish stocks becomes at risk.

As we see communities begin to dig in their heels because of mandates and "rights", then the first question that needs to be asked is if sustainability has been lost.

If you lose stability, then the arguments about sustainability or other concepts like "Netukulimk" are out the window.

This is the reality of the environmental world. Making fisheries management a political or treaty issue is not going to resolve the issue, it will simply mean that communities will push towards their own interests and we will be out of fish. This has happened before.

Understanding a view of Netukulimk

When we consider this term, we need to change our perspective on how we look at security. This is less about the concept of corporate security (involving protecting assets and operations) and more about the security and well-being of the community. For those seeking professional status, this aspect cannot be ignored. The protection of communities is intrinsic in even the most basic of professional behaviour.

We also need to refocus our thinking away from the traditional doctrine of looking at security in terms of monetary impact. While this approach is useful in the corporate context, it fails to address whole aspects when we look at the ability the community to support itself and maintain its well-being.

Where we can link security to this concept is in terms of our approaches to criminality. We see criminality in terms of a combination of motivation, means, and opportunity. Security's response to this has often been to impose controls that address the means and opportunity, but the aspects that deal with the motivation for crime is largely overlooked or underexamined.

To accomplish this, we cannot think of prosperity in terms of simply ever-expanding profit margins and bank accounts. It needs to be looked at in terms of a community's ability to sustain itself and achieve a level of prosperity without undermining its ability to keep that prosperity into the future.

Explaining this kind of approach would benefit (significantly) from those that have an in depth understanding of how it functions at individual and community levels. Consequently, efforts are being made to reach out to those that can provide and communicate these viewpoints and perspectives more completely.

Managing Infrastructure Issues

Three major announcements are of note since the last edition.

Inland Container Terminal at Onslow.

While this container terminal is being looked at in terms of how it may reduce downtown truck traffic, it offers a significant shock-absorber for the Port of Halifax. The challenge with many container yards can be described as a lack of space. Where containers cannot be moved through the system, blockages occur that can cascade back through the system. This terminal, largely due to its size and siding, has the opportunity to offer additional space to pick up that surplus demand and normalize the flow of containers during the recovery period of a disruption.

For example, under the current structures, a disruption in the Port of Halifax results in a situation where containers are either delayed or diverted. By having the additional space available, those containers can be paused closer to the Port (speeding recovery) but also allowing for more predictability in the routing of supply chains and vessels.

When we consider the road networks along the coast, planning these networks need to start including alternate routes if we don't want populations cut off.

500 Million for New Roads and Bridges

The road network in Nova Scotia lacks redundancy when it comes down to disruptions. Particularly true when it comes to coastal communities. The challenge here is as much about the deteriorating infrastructure as it is about establishing the necessary level of resilience in Nova Scotia's transportation network.

The impacts in terms of maritime security are fairly profound at this point. With many communities being connected only through coastal roads, the ability to respond effectively can be curtailed by any number of events.

The Catalogue of Approved Dwellings.

This federal announcement (tied to a post-war approach) needs to include a level of flexibility to deal with coastal conditions. While the catalogue offers developers an ability to get plans approved more quickly, the concern continues to rest with Building Codes being little more than minimum standards or baselines for construction.

It may be premature to push any alarm bells, but let's consider this from a mitigation perspective (speaking in terms of disaster man-

agement versus asset protection).

We have seen, even just recently, the impact of significant weather events on communities. This includes two recent storms (about a week apart) that resulted in significant power outages. They also included significant rainfalls.

Ensuring that the building catalogue is tied to resources like the databases associated with natural disasters may go a distance in terms of mitigating some of these effects. Something as simple as requiring a generator hook up as part of the electrical system would address significant fire safety and power issues. Similarly, taking steps to prevent structures from flooding such as grading, can improve conditions. Even simple decisions like what building materials to use and allowing adequate fire barriers in construction can help avoid conditions that we saw with the wildfires in Nova Scotia.

This is just to say that a catalogue should not be used as a cookie cutter approach. There still needs to be some considerations for building safe housing, not just a lot of housing.
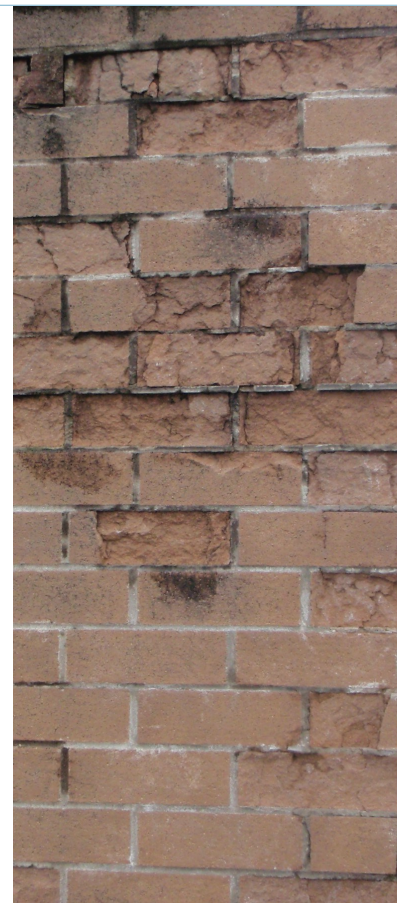
Dual Use Technology

Stricter export regime laws add another layer of complexity to the economic risks associated with civilian-centric development. These laws, designed to regulate the international transfer of goods and technologies with potential military applications, may restrict the global reach of products developed exclusively for civilian use. The failure to navigate these laws effectively can result in missed opportunities for international expansion and hinder the growth prospects of companies in an interconnected global market.

To mitigate the economic risks of developing only civilian use items, industries must carefully consider the dual-use implications of their innovations. Companies can explore strategic partnerships with defence contractors, actively engage with regulatory bodies to ensure compliance with export laws, and emphasize the potential dual-use applications of their products. By addressing concerns related to the dual-use label, industries can position themselves to tap into both civilian and military markets without compromising on ethical principles.

While a civilian-centric approach to innovation may align with certain values, it carries inherent economic risks that cannot be ignored. Industry stakeholders must strike a delicate balance between civilian and military applications, recognizing the opportunities presented by the dual-use market. By navigating export regime laws, dispelling the dual-use stigma, and adopting a strategic approach, companies can unlock the full economic potential of their innovations, ensuring long-term viability in a dual-use world.

Your company may well be producing dual use items without you even realising it.
Let's take the case of an item of civilian use for example a washing machine. If a washing machine has a microchip in it that could be used for military purposes, is the washing machine itself a dual use item and should it be declared as such to the export regime?
Yes, if a washing machine has a microchip in it that could be used for military purposes, the washing machine itself is considered a dual-use item. The term "dual-use" refers to products, technologies, or materials that have both civilian and military applications. In this case, the microchip within the washing machine has the potential for dual use – it can serve its primary function in a civilian context (i.e., controlling and optimizing the washing machine's operations), while also having applications in military systems.

Explanation:

1. **Dual-Use Definition:** Dual-use items are those that can be used for both civilian and military purposes. The presence of a microchip in the washing machine, which has military applications, makes the washing machine itself a dual-use item.

2. **Technological Components:** The microchip is a key technological component that can be employed in various applications beyond the washing machine's intended civilian use. Military systems often leverage advanced technologies, and a microchip designed for civilian use may find applications in military equipment or devices.

3. **Regulatory Perspective:** From a regulatory standpoint, items that have potential military applications, even if their primary purpose is civilian, are subject to export controls and regulations. Governments often monitor the export of dual-use items to prevent their use in activities that may pose a threat to national security.
Risk of Misuse: The recognition of the washing machine as a dual-use item stems from the concern that the microchip, if it falls into the wrong hands, could be repurposed for military applications. The dual-use label helps authorities manage and regulate the transfer of such technologies to prevent unauthorized use.

In summary, the inclusion of a microchip with possible military applications in a washing machine qualifies it as a dual-use item. This classification is essential for regulatory oversight, export controls, and ensuring that technologies with potential security implications are managed appropriately to prevent misuse.

Changing Face of Naval Conflict

Continued from Page 3

Drones and a New Imbalance?

The use of drones has revealed a key imbalance in how we think about naval engagements. Western forces tend to rely upon fairly technical solutions (such as guided missiles) that are launched to intercept aerial drones. This form of engagement, however, is a losing proposition for the western navies at the onset. The aerial drone can be constructed for as little as about $20,000. The missile used to intercept the drone, however, cost several hundred thousands to build. Needless to say, the accountants in the room are likely to start asking about that imbalance.

This imbalance, however, does not actually ring completely true. Let's look at this from a slightly more holistic perspective.

Our first level of decision is really if we should do something or not. This decision can be influenced by perspective. If we compare the cost of the missile (expensive) to the drone (not so expensive), then some might argue (legitimately) that we are in a losing proposition. But does that simplistic approach really capture the issue?

We Need to look at the costs of doing things, but also understand the costs of not doing things.

What if we didn't launch the missile to intercept the drone? Let's look at some of those impacts.

First, let's be clear about roles and responsibilities. This is a debate that reached a crescendo in the anti-piracy campaigns from 2009-2011 (in the same region). Private shipping companies have a role in protecting their crews, vessels, and cargo. Government forces (such as navies and coast guards) have a role in protecting and preserving the waterways. Setting down what the balance is between these two priorities has long been a matter of debate.

Next, let's look at some of the impacts of not intervening and allowing the drone to strike. Remember, our general threshold is $500,000 (the cost of the missile) which we will allow to double to cover other costs like that portion of time allotted to the action by the warship and its crew.

Our first issue involves the physical damage including loss of life (crew), damage to the ship, and damage to the cargo. This may involve damage to the hull and so forth.

Our second issue involves the potential environmental impacts of the event. This can also vary significantly depending on the ship. Some ships may pose very limited environmental threats but what if the attack is against a laden tanker? The environmental damage and clean up could cost into the millions alone.

Now let's look at the costs associated with replacement values. While variable, we need to understand that there is an impact associated with the damaged cargo not making it to its destination. What that specific impact may look like is a bit nebulous, but in this case those costs can be looked at in terms of the cost to remove the damaged item, the cost of another item (at least in terms of poten-

tial losses due to the second item no longer generating a profit). Finally, there is the cost of duplicating the shipping effort to that point. These costs are above and beyond the impact of not having the items available when needed.

Finally, there are the costs associated with the operations in the area. The two easiest costs in this include insurance costs (war, hull, etc.) as well as the potential costs as shipping companies (such as BP and Maersk) begin to avoid the area and consume more fuel, time, and other resources routing around the issue.

When we start to look at impact in those terms, we begin to see that the imbalance is not nearly as one-sided as presented. The issue is far more than the simple cost of a drone and the cost of firing and losing one missile out of the inventory. We need to look at the issues we mitigate by taking this action and factoring them into the equation.

This doesn't mean we want to leave things completely as they are. The purely transactional case of missile cost compared to drone cost is not invalid. It means that we need to understand the impacts of our decisions, or our non-action, before simply presenting pieces that may argue things from too simplistic a perspective.

Publication Schedule

This newsletter will be sent out every two months (February, April, June, August, October, and December) around the last business day of the month. The focus of the newsletter are those activities within the International Association of Maritime Security Professionals (IAMSP) that seek to build capacity as well as other developments outside of the Association that may serve those seeking to improve their maritime security posture, education, skills, or experience.

The publication falls under the oversight of the Chief Learning Officer for the Association.

This December we would like to wish those reading this newsletter with a safe, happy, and prosperous holiday season. As we look out across the various seasons (ranging from Christmas, Hanukkah, Kwanzaa, or others) we hope to see the world moving in a more positive direction for all.