



LEADING IN A DATA CENTRIC SOCIETY

Date: November 23, 2020

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KEY EVENTS

On November 23, 2020, Lieutenant-Colonel Vincent Virk presented on the topic of Leading in a Data Centric Society at the 2020 CASIS West Coast Security Conference. The presentation was followed by a moderated question and answer period. Key points of discussion included: quality of data, the forms of bias, the gaps in data, verifying the data that one comes across, and finally, the limits of data in the context of leadership.

NATURE OF DISCUSSION

Presentation

Lieutenant-Colonel Virk discussed the advantages and disadvantages of leading in a data-centric society, and what can be done to mitigate the challenges that leaders in the military can face while operating in this environment.

Question Period

During the question period, the discussion focused primarily on the benefits of data as a tool to promote interagency collaboration and share unique perspectives.

BACKGROUND

Presentation

The Canadian Armed Forces have identified that using data analytics at the officer level may be beneficial to the organization. In a digital era where data is abundant, good leadership may be identified by a drive to modernize and adapt to the changing technological landscape and address the challenges of the contemporary security environment. However, where there are opportunities, there may also be challenges. Large quantities of data, and the rapid spread of misinformation and disinformation, makes assessing the credibility of sources a

challenge for leaders and their organizations. Tools that we can employ to ensure best practices include questioning the quality of data, identifying the forms of bias & the gaps in data, verifying the data that is chosen, and identifying the limitations of data, which can also guide how data and information are operationalized.

The quality of the data analysis depends in part on the source it is derived from, and in using well-sourced data from the beginning increases the likelihood of a high-quality final product. The same system still applies to more complex forms of processed data; the quality and clarity of the data algorithms themselves will play a large role in the quality of the overall output. In current times, the source of the data is as important as the information itself. Analyzing how data is shaped to be collected and the quality of the source can assist in ensuring that the final product is based upon trusted sources and objective criteria.

Pitfalls in analyzing data can still occur due to analyst bias. Bias can take place in 3 possible forms: bias that one is aware of, bias that one is unaware of, and bias that one chooses — i.e., confirmation bias. Examples of bias are most easily seen during the analysis phase of data analytics. Understanding the link between potential bias and the data that one uses in their analysis is vital to avoid degrading a final product.

Identifying the limitations and the gaps within data might provide a tool for mitigating tunnel-vision. Even with massive amounts of data, the challenge of selecting the most appropriate and robust sources to mitigate biases exists. Understanding the limitations of selected data is arguably as important as understanding the advantages of the chosen data.

Artificial intelligence, machine learning, and similar advances have increased the ability to model complex systems. Managing leadership priorities and directions are arguably more important than ever to navigate the excess of information available. Using critical thinking to ensure the purpose and questions posed of data is likely to prove instrumental in navigating this abundance.

As the world becomes more autonomous and more sophisticated with nearly instantaneous forms of data gathering, analysis, manipulation, and deployment, leaders might be required to command with a more hands-off approach. Applying sophisticated mission-command style like concepts is likely to become more vital and need to be more sophisticated to appropriately synthesize and fully leverage data in strategies and tactics.

Question Period

In the context of what can cause bias when interpreting data, an emphasis was placed upon the implications of a lack of gender diversity in examining data. The existence of gender bias could be due to insufficient gender diversity of viewpoints at tables which collect data, annotate data, and summarize it for further use.

Furthermore, although different agencies operate with data in a variety of ways, these interactions should not be considered as separate. Data can be viewed as the tool which brings together multiple agencies and contributes towards interagency collaboration.

KEY POINTS OF DISCUSSION

Presentation

- The Canadian Armed Forces are prioritizing modernization using data analytics at the officer level.
- Managing the primary three forms of bias — bias one is aware of, bias one is unaware of, and the bias which is chosen — will be instrumental in ensuring robust analysis.
- The quality of the data used in the analysis process directly impacts the credibility of the final product.
- Verifying the data one receives and the information that one seeks can benefit consistency in the analysis process.

Question Period

- Concerns of a lack of diverse generational, gendered, and minority perspectives were expressed. Participants discussed examples of gender bias in data analytics and how it arguably occurs due to a lack of diverse perspectives at the data collection, annotation, and summarization phases.
- Collaborating with various public sector and private sector stakeholders might allow for the collection and incorporation of data, which is representative of minority groups.
- Data can be viewed as the tool that brings together multiple agencies and contributes towards interagency collaboration.



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