



## **MONEYBALL FOR THE ARMY: BUILDING UNITY OF EFFORT THROUGH A COMMANDING OFFICER DASHBOARD**

**Lieutenant-Colonel Andres Sepa**

**JCSP 50**

**Service Paper**

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**PCEMI n° 50**

**Étude militaire**

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CANADIAN FORCES COLLEGE - COLLÈGE DES FORCES CANADIENNES

JCSP 50 - PCEMI n° 50  
2023 - 2024

Service Paper – Étude militaire

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## **MONEYBALL FOR THE ARMY: BUILDING UNITY OF EFFORT THROUGH A COMMANDING OFFICER DASHBOARD**

### **AIM**

1. The aim of this service paper is to demonstrate the need for a building unity of effort in the analytics approach of the Canadian Army (CA) by creating a common CA dashboard that is automatically tailored to enable data driven decision making by commanders at unit, brigade, division and army levels. The combat elements (fighting units) of the CA possess the true horsepower that delivers operational effects and consumes the majority of resources.

2. This paper pursues a change to the focus of the CA dashboard from the cart carrying the administrative burden of reporting to enhancing the horses' performance and effectiveness and contributing to increased combat power. CA Land Operations doctrine discusses the need to 'understand and overcome complexity' by building a knowledge base that analyses "*all systems influencing an environment and through continuous assessment of activities and their effects.*"<sup>1</sup> This pivot would provide Commanding Officers of combat elements with the tools and data necessary to enhance readiness, improve resource allocation, and mitigate unpredictability.

### **INTRODUCTION**

3. In Michael Lewis' book Moneyball about Baseball Statistics, on the topic of resistance to change, he contends, "*Baseball offered a comfortable seat to the polysyllabic wonders who quoted dead authors and blathered on about the poetry of motion. These people dignified the game like a bow tie... What was threatening was cold, hard intelligence.*"<sup>2</sup> Similar to how baseball relied on the intuition of scouts to build teams, the Canadian Army (CA) has favoured the intuition of seasoned members at the expense of data driven decision making. In a correspondingly harsh criticism, the CA's own Digital Strategy notes that the army lacks a data driven culture and struggles even to recognize "*the delta between our current culture and the digital one we need – let alone realize why we might need one in the first place.*"<sup>3</sup> This is not to say that experienced and intuition based judgement has no place but rather that intuition with data is superior.

4. The Canadian Defence Policy, Strong Secure Engaged (SSE), recognizes the greater role that technology, information management and data will play in the future of defence.<sup>4</sup> In 2017, work was already underway, and the Chief of Defence Staff and Deputy Minister published the 'Joint Directive to Develop and Operationalize a Defence

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<sup>1</sup> Her Majesty the Queen, 'B-GL-300-001-FP-001 — Land Operations', 54.

<sup>2</sup> Lewis, *Moneyball*, 141.

<sup>3</sup> *Modernization Vital Ground*, 11.

<sup>4</sup> *Strong Secure Engaged*, 55.

Program Analytics Capability, leading to the standup of Associate Deputy Minister (ADM) of Data, Innovation, and Analytics (DIA).<sup>5</sup> This new ADM was loosely based on the successes of the Royal Canadian Navy's (RCN) Command Analytics Support Cell, which had built a performance dashboard for captains of ships.

5. Subsequently, in 2019, the Department of National Defence (DND) and the Canadian Armed Forces (CAF) published the first Data Strategy with the vision that data is '*leveraged in all aspects of Defence programs, enhancing our defence capabilities and decision making, and providing an information advantage during military operations.*'<sup>6</sup> Significant progress has been made with ADM DIA and ADM Information Management (IM) to develop data policies and governance, implement tools, and provide training in the use of those tools. Providing a framework for all L1s to use for analytics but without any prescriptive guidance on the development or harmonization of dashboards. Nevertheless, by 2022, Chief of Defence Staff General Wayne Eyre provided blunt comments in his forward in the CAF Digital Campaign Plan, observing that the CAF has not kept pace, noting that the many digital initiatives "*are not yet coherent in unity of thought, purpose, and action.*"<sup>7</sup> General Eyre's criticisms accurately summarize the Canadian Army's efforts in the digital domain.

6. The CA has employed a myriad of initiatives and tools that attempted to improve data driven decision making, most of which failed to meet expectations, Performance Measurement, Service Level Analysis bounds, and Equipment Readiness Dashboards, to name a few. Too often, staff have been chasing a chicken and egg problem; officers are hesitant to use data for decision making as it is scarcely created, and soldiers don't want to create data that isn't being used for anything. These initiatives were often plagued by disparate Excel spreadsheets that were labour intensive to populate, prone to error or manipulation and required manual aggregation at every level of the organization.

7. Despite past failures, the CA has never been better positioned to foster a data driven culture than now. Much of the labour intensive and time consuming tasks of procuring complex databases and software and developing governance policies have been implemented by ADM (DIA). Vast amounts of data that is created daily by users in Monitor/Military Administrative Support System (Monitor/MASS), Defence Resource Management Information System (DRMIS), and others is easily available for analytics by Army users today, significantly reducing the burden of data collection. While there is a tendency to collect more data, believing it will drive more insightful decisions, the argument can be made that the CA would be better served in the immediate future by using currently available data more effectively.

8. The Canadian Army's response to various higher level digital initiatives has been to create a dashboard which can be argued is '*not coherent in the unity of thought, purpose or action.*' The current dashboard is a collection of poorly visualized Key Performance Indicators (KPIs) are easy to measure but not necessarily relevant to

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<sup>5</sup> *The Department of National Defence and Canadian Armed Forces Data Strategy*, 2.

<sup>6</sup> *The Department of National Defence and Canadian Armed Forces Data Strategy*, 9.

<sup>7</sup> Her Majesty the Queen, 'CAF Digital Campaign Plan', 2.

improving or managing combat power and lack meaningful performance targets. The current dashboard misses the mark on the CAF Digital Campaign plan which aims to evolve data driven decision making from simple descriptive analytics to predictive and prescriptive ones that generate decisive military advantages.<sup>8</sup>

## DISCUSSION

9. Building a meaningful dashboard is a natural starting point for successfully implementing a data strategy in the CA.<sup>9</sup> Past failed attempts focused heavily on measuring CA compliance with DND policy without any link to key operational objectives of the CAF or CA. For a CA dashboard to inform decision making within the CA, it must measure activities that directly contribute to the CA role of force generation. The focus should be on three to five Key Performance Indicators representing actionable information toward goals. Users have little appetite for manually populating Excel spreadsheets; the data must automatically be drawn from existing databases.

10. The CAF Digital Campaign Plan accurately identifies that “*we have the right people – we need to give them the right tasks.*”<sup>10</sup> Contrary to popular sentiments, a sizeable number of soldiers and officers in the CA are savvy and digitally literate. However, their skills are often underutilized due to an appraisal system favouring intuition based judgement over technical knowledge and skills. To succeed, the CA must find people with a passion for solving problems with data, an understanding of internal processes and a willingness to challenge the status quo. These data savants could be leveraged to provide an understanding of business processes and analytics to design a meaningful dashboard.

11. A key failure of past attempts has been a lack of unity of effort across levels of command within the CA. Past data driven reports created at the CA level have seldom been used below the division level and often lack relevance to the key decision maker, the Commanding Officer (CO) who is responsible for the performance of the resources. A CA dashboard that focuses on building unity of effort between unit COs, brigades, divisions and the Commander of the Canadian Army (CCA) is critical to achieving any meaningful results. To build unity of effort COs and Commanders across the CA must be presented a clear intent and mission statements, common tactics, techniques and procedures and designated a main effort.<sup>11</sup> This would also have the second order effect of building data literacy across the command structure.

12. Improving the visualizations and interface of the dashboard is critical for increasing command and staff engagement. A well thought out user experience with clear and meaningful visualizations would prevent users from becoming overwhelmed with technical complexity. Significant progress has been made with implementing PowerBI in simplicity and user experience. However, the current dashboard requires all users to

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<sup>8</sup> Her Majesty the Queen, ‘CAF Digital Campaign Plan’, 20.

<sup>9</sup> Marr, *Data Strategy*, 83.

<sup>10</sup> Her Majesty the Queen, ‘CAF Digital Campaign Plan’, 13.

<sup>11</sup> Her Majesty the Queen, ‘B-GL-300-001-FP-001 — Land Operations’, 5–76.

navigate through the CA organizational structure to select a unit, brigade or division each time a separate page of metrics is selected. This creates a cumbersome process for commanders and staff who want to view a unit level performance dashboard. The creation of a dashboard that automatically identifies the user unit and level in the organization, and displays the corresponding dashboard would build better user engagement. This would empower unit COs to maintain a continuous, near real time view of their unit's performance, with the ability to provide a summary of the data displayed in wording directed to the appropriate user (staff or Command Teams at the unit, brigade or division levels). This would provide the means for staff to advise and commanders to decide on how to address inefficiencies, and best optimize resources to improve the performance of their unit or formation.

13. This automatically tailored dashboard could be further developed in the future to leverage unity of effort across similar units. For example, the details for COs of regular force artillery units are symmetrical, and their unit level reports could be harmonized to display key details on artillery readiness that maybe irrelevant to a light infantry unit. In this example, the data displayed for artillery units could be tied to the specific readiness of gunners, M777 availability, the consumption of 155mm ammunition and influenced by crops level priorities. Similarly, the report could be further refined to consider where a unit or formation resides in the CA Managed Readiness cycle and display corresponding data and targets, such as Green Passports expiring before the consume phase ends. A relevant user centric dashboard would create a pivotal shift of empowering commanders at all levels with the data needed to inform decision making.

14. Accurate data is vital to building trust in data driven decision making. Issues concerning the integrity of data has plagued virtually every CA data initiative. The data used in this dashboard would for the most part be a product of the soldiers in the CO's unit. Hence if data integrity concerns arise the COs are the closest to those who can correct it. Empowering COs with the ability to see and understand the data will create a renewed level of interest in soldiers to ensure the data is accurate, as they know their CO is using the data to inform decision making. In essence, this would break the perpetual chicken and egg cycle. This by product of building trust in data integrity is a critical factor to the success of the CA Data Strategy.

15. The goal of this tailored dashboard is to empower CO level data driven decision making in areas of resource allocation. This provides the means for timely and effective decision making, mitigating the enduring characteristic of unpredictability that exists for all commanders.<sup>12</sup> While this dashboard is not intended to be a command control communication, intelligence, surveillance and reconnaissance (C4ISR) or battlespace management tool, it would create an information advantage. This could lighten the effort required to manage internal resources effectively and allow commanders to focus cognitive efforts on combat power and operate within the Observe, Orient, Decide and Act loop of their adversary.<sup>13</sup>

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<sup>12</sup> Her Majesty the Queen, 'B-GL-300-001-FP-001 — Land Operations', 54.

<sup>13</sup> Schechtman, Overdrive, and Overdrive ebook, *Manipulating the OODA Loop: The Overlooked Role of Information Resource Management in Information Warfare*, 21.

16. The development of the tailored dashboard can not be viewed as something that would happen overnight, nor as a one off task, but rather a tool that constantly requires time, commitment and collaborative input from across the organization. The initial development would require collaboration with unit COs and their staff to ensure it is harmonized with CCA intent while aligning with the operational needs at unit and formation levels. The dashboard must be seen as something that will go through regular iterative cycles of refining and adaptation to changing CCA priorities.

## CONCLUSION

17. This paper highlights the critical requirement to improve data driven decision making in the CA. It contends that the creation of a comprehensive unit level centric dashboard could significantly enhance commanding officers' data driven decision making. The path to meeting the intent of the CA Data Strategy is challenging, and overcoming cultural resistance to change will not happen overnight. However, the potential benefits of improved efficiency, resource allocation and readiness are too enormous not to be addressed.

## RECOMMENDATION

18. To embrace data driven decision making and enhance operational effectiveness, the CA should develop and implement a comprehensive dashboard that aggregates, visualizes and interprets data across all levels of command with the CA. The following outlines a potential approach to implementing the dashboard:

- a. For the dashboard to be relevant, it must be designed to align directly with CCA's intent and harmonize these efforts across the CA. A dedicated owner must be assigned to oversee the dashboard's alignment and maintain a consistent user experience.
- b. The development should begin by building on lessons learned from the CA Equipment Readiness Dashboard, refining the logistics and maintenance data for the unit level with a focus on CCA intent.
- c. Expand the dashboard to include data from other functional areas of finance, personnel management, readiness, taskings, etc.
- d. Develop a continuous refinement cycle that regularly validates the dashboard is aligned with CCA intent, meets the needs of CO's and Commanders and is updated to changing CCA priorities or objectives.
- e. Once the tailored dashboard has matured and become effective, the concept and likely many metrics could be used as a template at the VCDS level or other L1s.

19. It is recommended that the development of a tailored dashboard aimed at building the flexibility of a unit CO to empower effective decision making. If implemented properly this could lead to a paradigm shift in the CA culture towards data driven decision making. As Lewis observed in Moneyball, if you trusted the data "*you didn't*

*have to give two minutes' thought to how a guy looked, or how hard he threw. You could judge a pitcher's performance objectively, by what he had accomplished."*<sup>14</sup>

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<sup>14</sup> Lewis, *Moneyball*, 355–56.



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