

On the way to effective data ambassadors: A post-intervention analysis

Introduction

The Royal Netherlands Navy (RNLN) plays a crucial role in maritime operations, emphasizing safety on and from the seas, supporting domestic operations, and participating in NATO missions. The Directorate of Materiel Sustainment (DMI) ensures the operational readiness of the fleet through maintenance.

Data for Maintenance (DvO), a new department within DMI, focusses on implementing data-driven maintenance for the current and future fleet. DvO aims to integrate data usage gradually within the RNLN.

This research specifically targets Data Ambassadors (DAs) individuals – mainly within DMI – trained by DvO to promote data usage through a bottom-up approach. DAs work on cases from their day-to-day work to showcase data advantages, fostering awareness within DMI. Individuals from DMI are trained by DvO to gain knowledge of data-driven decision making, and so become data ambassadors.

Following the training (intervention), a notable challenge emerges: The existing effectiveness of the trained DAs is unknown, impeding progress in refining DvO's course aimed at training DAs. Furthermore, this lack of information hinders an understanding of the factors that influence the performance of the DAs within DMI.

This research aims to address this gap, by offering insights into the impact and challenges faced by DAs during the implementation of data-driven decision-making within the organization.

Methods and approach

There are 16 semi-structured interviews conducted to gain an understanding of the current workplace and working context of DAs. From every department of DMI at least two employees are interviewed. The interviewees were either system or installation engineers. They work from a desk and focus mainly on managing and planning of maintenance. Semi-structure allows for further exploration of interesting topics to get to the root of the topic.

Employing the work system framework proposed by Carayon (2009), our interviews were meant to encompass the five components illustrated in Figure 1. Each component represents a part of the working workplace and working context of a DA, with potential interactions among them. Further, a change in one component can influence the relation between two others. Hence, "It describes all aspects of a worker and its outcomes. Tasks are performed by an individual who uses tools and technologies; these tasks are performed in a physical environment and under organizational conditions." (Carayon, 2009, p.317). These interactions consist of negative and positive aspects

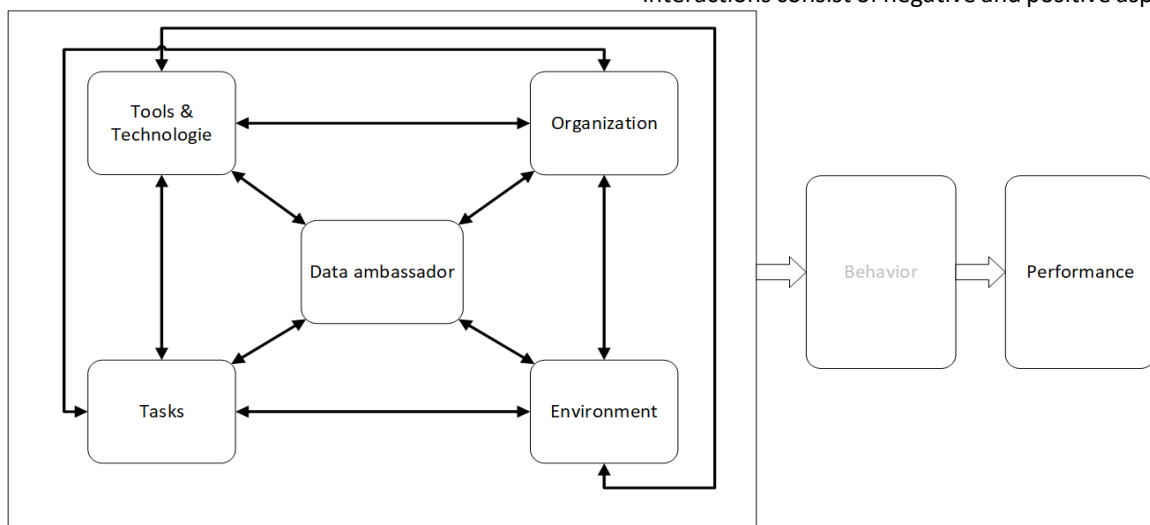


Figure 1 The work system (adapted from Carayon, 2009; van Oudenhoven et al., 2022).

within the components. For example: The organization facilitates requested training in different soft skills whenever this is requested by employees to enhance their working performance. The interactions between components lead to a certain performance. In this research we refer to performance as the influence a DA has on its peers, namely, if they are motivated by the DA to start working more data driven. Hence, contribute to the goal of DvO, integrate data usage within the RNLN.

The work system relies on two principles (Carayon, 2009):

1. Aspects with a negative load need to be eliminated, if possible.
2. If aspects with a negative load cannot be eliminated, these aspects should be mitigated with positive aspects such that the balance in the system is restored. If an aspect cannot be effectively mitigated, one should at least try to introduce positive aspects as some sort of compensation.

Results and observations

Upon analyzing the interviews, five distinct challenges have emerged:

1. DAs experience significant work pressure in their day-to-day job.
2. Limited data availability poses a challenge in promoting widespread data usage.
3. Not every DA seamlessly fits within his or her new role.
4. The bureaucratic culture within DMI proves resistant to change, given the organization’s size and inherently slow pace of changes.
5. Post-intervention, there is insufficient support for DAs to further enhance their knowledge and skills in utilizing data effectively.

Conclusion

Our approach revolves around addressing the challenges that have been identified in this study, either through complete elimination or, at least,

mitigating their impact by introducing positive aspects. The following recommendations for DvO emerge from our findings:

1. Strategically target departments within DMI where sufficient data is available to promote data driven maintenance.
2. Be critical when choosing DAs by making sure they are a good fit for the role.
3. Get middle management on board to support data ambassadors.
4. Stress the importance of good data ambassador selection to middle management.
5. After the intervention, continue supporting DAs. This can include organizing follow-up meetings to provide ongoing guidance and support.

Future research

This research is based on one single case study. Future research could learn from these findings and analyze what problems arise in other organizations. The RNLN could also expand this research and do more interviews across DMI to check if the findings in this research still hold if a greater proportion of employees is interviewed.

References

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Facts		PrimaVera – Powered by:	
Student	Sjoerd Vermeulen	 	Koninklijke Marine
University	Eindhoven University of Technology		
Supervisors	Dr. Ir. Rob Basten Dr. Wieger Tiddens		
Company	Royal Netherlands Navy		