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Displaying Electronic Warfare Situation Awareness in Estonian Defence Forces

Master's thesis

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Abstract

Electronic Warfare is a force multiplier that can enable asymmetric effects on the battlefield and in operations other than combat. In Electronic Warfare, technical assets are deployed to support achieving tactical, operational or even strategic goals. However, the people directing the military efforts usually do not possess engineering background. A risk of disconnect between the commanders responsible for achieving goals and Electronic Warfare specialists who operate and develop the capabilities exists.

In this thesis, Situation Awareness as a cognitive state was linked to Electronic Warfare as mastery over the electromagnetic spectrum through the concept of Data Fusion. Market research showed only a few available products designed to support Situation Awareness for the electromagnetic spectrum. These products seem to be mostly intended for Electronic Warfare experts and, without intuitive user interfaces are not suitable for supporting a tactical commander's ability to project future events.

The results of this thesis show a clear path towards improving displaying Electronic Warfare Situation Awareness in Estonian Defence Forces. Specific requirements were set for a missing feature as input for Estonian Defence Forces Situation and Battle Awareness System microservice development. Two mock-ups of value-added products were also prepared to visualize, what the service should be capable of.

This thesis is written in English and is 67 pages long, including 5 chapters, 19 figures and 18 tables.