Societal Business Case

Open-source communities, Cyber Innovation Hub, Version 0.7

*To: P-CDS and CIO*

*From: Quartermaster Cyber Innovation Hub (hereinafter: CIH);*

*Subject: Societal value of the open-source communities*

# **Introduction and added value (why)**

The purpose of this note is to inform about the CIH's initiative to work with external open source develop communities within the security domain. For CIH, the added value of collaborating with external parties is to achieve accelerated technology- and product development in a safe environment. Also, collaborating with external parties enables CIH to create products that can be purchased by the Dutch Ministry of Defence.

For the Ministry of Defence, it is of importance that the CIH invests and participates in the communities and act as a driver to keep communities productive and active. The “Standard for Public Code” is used for setting up the communities.

We have adopted the concept and prototype of the open-source data diode from Front and the MIVD and started a collaboration with ICTU to set up a community with market parties.

In this memorandum we discuss the principle of the open-source community. In the appendices, the principle is applied to the concrete example of the OSDD initiative.

# Approach, the open-source community (how)

The aim of the open-source community initiative is described as follows: 1) Rapid interaction with market parties, 2) develop products that anyone can purchase, and 3), accelerating the development of security products that are important for the security of the Netherlands. For the Ministry of Defence, it is critical to work with market parties that can convert developments into certifiable products. The underlying idea is that open and commercial development go hand in hand.

A community around product development consists of various parties, such as needs monitors (Defence and other departments), vital infrastructure parties, and developers, who can put the products on the market. Various internal and external parties have already been approached by the CIH. And many parties have indicated their interest to actively participate within the open-source community.

In the community that we are currently setting up around the open-source data diode (hereinafter: OSDD), Enexis (a grid operator), for example, has become an active partner. They expressed the ambition to contribute to the further development of the OSDD and to purchase the data diode as soon as the product goes into production (in high volumes and at a good price). In Appendix 1 and 2, we discuss the OSDD project in more detail.

This approach may also be useful for other Defence policy areas.

# Effects to be achieved (benefits)

The CIH aims to achieve the following effects by participating in the open-source communities:

* Higher visibility of the Ministry of Defence in the cyber world, through an active and recognizable contribution to the open-source community;
* Accelerate the development of cyber capabilities within the Ministry of Defence. The participation of external developers to the open-source community contributes to the cyber knowledge and skills of Defence. It is expected that the open-source community has a learning effect on Defence employees;
* Interest talent for working at the Ministry of Defence.

See **Appendix 2** for an overview of the results and effects to be achieved.

# Path Forward

In order for this initiative to succeed, active participation by the Ministry of Defence is required. This concerns designers and developers of software. In the near future, the CIH will ask Defence experts, including from the Joint Informatievoorziening Commando (JIVC), to participate in one or more communities.

One of the policy goals of the JIVC is to encourage open-source software development. Firstly, because school leavers are well trained in this, secondly because it offers more flexibility of development, thirdly because it prevents vendor lock-ins.

# Appendix 1 example open source community, the open source data diode (OSDD)

The aim of the OSDD project is to increase cybersecurity in the Netherlands by making a cheap and accessible open-source data diode available to public and private parties in the Netherlands. Due to the achievable scale, the OSDD will become cheaper and therefore also more available to the Ministry of Defence itself.

A data diode is a network appliance that, based on its physical properties, enables data traffic in only one direction. By doing so, data diodes can protect networks and systems against external cyber threats. The currently available data diodes are mainly used for highly classified domains, where a high degree of information security is critical. The high requirements in highly classified domains make the data diodes relatively complex and expensive. The open-source data diode, however, is based on a simple design and use. As a result, a cheap and low-threshold data diode will become available for public and private parties in the Netherlands. Consequently, they can be used on a larger scale and increase the security of the Netherlands.

Specific applications require many variants concerning, for example, the size, heat-, moisture- and shock resistance, or integration into systems. Certain variants can easily be placed in the community, after which developers and companies can make the products and business cases for commercialization.

At this moment, a demonstrator of the OSDD is available that has been developed by the Ministry of Defence together with a market party. Experiments are carried out within and outside the Ministry of Defence for its further development. The experiments led to an increase in demand. An example is the field test in an Enexis high-voltage substation. After that, the value was established and the demand increased. The CIH also held several presentations for CISO’s and operators of vital infrastructures, which generated a considerable amount of interest and demand.

# Appendix 2: results and effects to be achieved (benefits map)

