Capgemini invent

JIVC OPTIMIZES SIMULATOR TRAINING FOR NAVAL PERSONNEL BY DESIGNING HIGHLY USER-FRIENDLY INTERFACE

User-Centered Design Process modernizes training simulator for submarine instructors into highly user-friendly interface, allowing more efficient learnability, execution and management of operators' tasks.

Overview

Client: JIVC, commissioned by NL BEOPS

Region: Netherlands

Sector: IT

Client challenge/Business need: JIVC needed to improve the user interface of the instructor application of the submarine simulator Guardion Submarine Trainer (GST)

Solution: JIVC called on the expertise of Capgemini to install and execute a user-centric design process to optimise its simulator application. The work was executed by Backelite, the service design agency of the Capgemini Group.

Benefits

A CLEAR APPLICATION EXPERIENCE VISION AND STRATEGY

DEFINITION OF THE TRAINER'S USER JOURNEYS, IN 6 IDENTIFIED TASK PROFILES

USER-DRIVEN APPLICATION INTERFACE WITH IMPLEMENTED UX PATTERNS AND PRINCIPLES

INTERFACE REALISATION BASED ON 1100 PREPARED BACKLOG ENTRIES

Naval command training with modernized simulator

The Joint IV Commando (JIVC) is the main IT suppliers of the Dutch Ministry of Defence and is responsible for the development and management of all its IT resources. For the Royal Netherlands Navy, JIVC supplies the combat management systems on board the ships. To operate the system on a Walrus class submarine, navy personnel work with the Guardion Submarine Trainer (GST), a simulator for the education of commanding officers and sonar operators of submarines. Specifically, the GST trains complex skills and collaborations, such as steering on board and signal interpretation (sonar, radar, and periscope).

However, the application was not modified to meet operating demands and standards. The hustle and bustle of the education schedule, changes in the instructor pool and constant demand from operational and mission-preparing crew, made the GST time costly. Its lacking usability resulted in precious time and energy loss for GST instructors. To further modernize the simulator and boost workflow efficiency improvements had to be made to its user interface.

Need for a UX solution

JIVC understood that to reduce training errors, prevent time loss and increase usability of the application, the user experience needed to be optimized. Being a developer-driven organization without prior UX experience, JIVC wanted to partner up with an expert in designing user experiences. Capgemini was selected to plan, design and oversee the development of a user experience solution, because of its strong customer first approach. The main objective for Capgemini was to map all user flows, create a work plan and design the user-friendly interface as well as assist in its development.

Developing a highly flexible user interface

The number of variables and parameters that can be set to create realistic training scenarios as well as and the diversity of software tasks that a director must perform in his role (six tasks packages), makes the GST a complex system to operate. To meet all demands, Capgemini applied a User-Centred Design Process: by turning the application into a user-centric interface through design activities, a more efficient learnability, execution and management of GST operators' tasks could be created.

Extensive research and task analysis enabled all partners and stakeholders to identify, classify and prioritize the workflow processes to (re)design. By mapping user flows and designing new user journeys, the graphical interface could be based directly on user insights and needs. The simulator contains 500+ functions for building and executing various scenarios. Translating the research results into a work plan with a viable schedule enabled JIVC to develop with a clear focus and in an efficient working order.

The constant involvement of end users and stakeholders by creative facilitation kept design solutions on track. In short sprints interface solutions were cyclically generated and validated. Extensive UX review before the release of revised features supported JIVC to spike user satisfaction and ensure mutual trust between stakeholders.

The end-result is a white label product, which generic set-up can be reused in the interface of instructor applications for other departments and end users. For example, for the training of naval personnel on board a warship. This enables JIVC to construct personalized menus and functionalities, based on demands, situations and task profiles.

The benefits delivered

The user-centred design process has led to a fitting application, therefor JIVC achieved a significant increase in usability of the GST application, resulting in:

- An efficiency boost in the workflow of the GST operators
- Extra training time and energy for education - a plus for the student, teacher and instructor
- Reduction in training errors, allowing for more complex exercises

Another benefit was the significant reduction of development time. Through the user-centred design approach decisions were already validated early in the process. As a result, the software better matched user and client demands and required less adjustments in the development phase. Also, the high flexibility of the generic design makes it possible for JIVC to use the solution as the basis upon which to develop sub interfaces for other applications and systems. Thus, making it easier for JIVC to field the Guardion product line to other divisions in the Royal Netherlands Navy.

Cross-channel implementation

Building upon all the positive feedback and first successes of the UX solution, JIVC is currently looking into further implementing the generic concept. The insights gained from Capgemini's GST-solution have proven to be an important contribution to the design of a new Human Interface Architecture of future Human Machine Interfaces of Guardion (sub-)products on board all Navy ships. As the partnership moves forward, three additional Capgemini UX experts have been added to the project development team.

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