

<b>Research theme</b>	Systems engineering and architecture
<b>Research title</b>	Describing the Architecture of the TACTICOS System Using A3 Architecture Overviews
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<b>Research period</b>	From 6 June 2011 to 30 March 2012
<b>Supervisor</b>	Maarten Bonnema

## Background

The project was carried out at Thales Nederland B.V. in Hengelo. One of the main products of this facility is the TACTICOS Combat Management System (CMS), on which this project focuses. The CMS integrates all sensors, weapon systems and other equipment on a ship in order to have a single command & control system for operating the entire ship. The main tools used during the research, the A3 Architecture Overviews (A3AO) tool and the accompanying reverse architecting method were developed by Daniel Borches of the University of Twente while at Philips Healthcare MRI. An A3AO uses two sides of an A3 sheet; one for displaying a structured model composed of several interconnected system views, and the other for displaying structured textual information. The reverse architecting method is a three-step approach to gathering implicit knowledge from stakeholders and making it explicit.

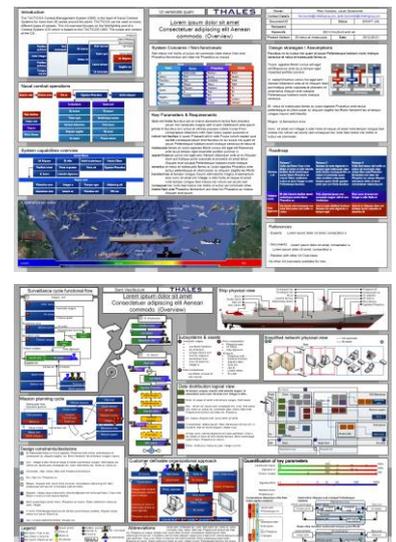
## Assignment

The goal of the project was to develop a compact – preferably consisting of only one A3AO – representation of the architecture of the TACTICOS CMS, usable by a variety of stakeholders within the organization.

## Results

A research approach was defined for gathering the required information. This approach included interviews, a questionnaire and testing phases. Based on input from these activities, a single A3AO was iteratively created, displaying the architecture of a large part of the system (see images). This overview was very well received, and several uses for the overview were found. Using the experiences acquired during the project, several differences with the original A3AO approach were found and an improved approach was defined regarding the creation of high-level, cross-disciplinary A3AO's.

The research led to various other activities regarding the A3AO's. Among others, a project was started which aimed to describe many aspects of the system in a similar manner as used originally within Philips Healthcare.



## Personal experience

Overall, doing this graduation assignment has been a very positive experience. The assignment had both a very clear academic and practical side, which made it very interesting. Furthermore, I feel that working at Thales allowed me to learn a lot of things which I wouldn't normally have come across. This experience, combined with the very positive response to both the A3AO tool and my specific assignment make that I had very good time during this project.