NavVision Stakeholder Requirement Specification

Automation Competence Centre

Publication type:	Automation Competence Centre
Publication number:	
Title:	NavVision Stakeholder Requirement Specification
Subject:	
Issue:	1.2.13
Publication date:	12/09/2013 15:04:00
Total number of pages:	14
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Quality Control:	

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2. References

[A] ISO/IEC 12207:2008 and ISO/IEC 15288:2008

[B] Survey Stakeholder wishes by Max Steenbergen

3. Abbreviation list

ACC	Automation Competence Centre
DPT	Dynamic positioning and tracking
FAT	Factory acceptance test
HAT	Harbor acceptance test
IAT	Internal acceptance test
IM	Imtech Marine
SAT	Sea acceptance test
SRS	Software requirements specification
StRS	Stakeholders requirements specification
SyRS	System requirements specification

4. Revision history

Revisions issued since publication.

Issue	Date	Revision	Reason
1.0.8	August 17, 2013		initial release
1.1.13	September 12, 2013	Improvements	

5. Introduction

5.1 Purpose and scope

This Stakeholder Requirements Specification (StRS) describes the organization's motivation for why the NavVision system is being developed or changed, defines business processes and policies/rules under which the DPT system is used and documents the top level requirements from the stakeholder perspective including needs of users/operators/maintainers/investors/authorities as derived from the context of use.

The information items of the StRS are specified by the stakeholders. The stakeholders are responsible for the content of this specification. The StRS serves as the basis of the stakeholders' active participation in the requirement processes. Typical types of stakeholder requirements included in the StRS are organizational requirements, business requirements, and user requirements.

Stakeholder Requirements are statements of the needs of a particular stakeholder or class of stakeholders. They describe the needs that a given stakeholder has and how that stakeholder will interact with a solution. Stakeholder Requirements serves as a bridge between Business Requirements and the various classes of solution requirements.

This document is based on ref. [A], which gives guidelines for applying the requirements and requirements-related processes described in ISO/IEC 12207:2008 and ISO/IEC 15288:2008.

5.2 Business purpose

FT NavVision has a long track record in the development of applications for Alarm Monitoring and Control Systems, all designed to optimize the basic ship operations. The NavVision solution is designed with the user in mind. The system was developed to provide our Customers a modular & scalable AMCS including installation and service. This resulted in a modular, flexible and state-of-the-art AMCS which complies with the automation requirements for Unmanned and Manned Machinery Spaces. Imtech AMCS provides control, monitoring and safeguarding of all equipment such as engines, generators, pumps refrigeration and hydraulic systems.

5.3 Business scope

- Luxury Yachts -> AMCS solution to optimize workflow
- Special Vessels -> AMCS solution to optimize accuracy and redundancy
- Naval vessels -> AMCS solution to optimize redundancy and workflow
- Working vessels -> AMCS solution to optimize workflow

The following requirements are defined to achieve the business scope:

- AMCS shall be competitive in market segments: Merchant, naval, yachts, working vessels
- AMCS shall be a total solution for Unmanned machinery space
- AMCS shall monitor and control all of ships equipment

5.4 Business overview

In the business domain the following external parties are involved:

• Users	Operates the system
• Maintainers	Maintains the system
• Investors	Buys the system
• Authorities	Gives regulations to the system (main authorities: Lloyds, ABS, DNV, GL
• Shipyard	Facilitator of building site is often also the client
• Imtech	Builds and prepares the system in the workshop

Internal the following parties are involved

• ACC	Develops and maintains lifecycle of solution
• Sales	Sells solution and has interaction with client
• Operations	Implements solution for project. Has interaction with client during implementation
• Services	Troubleshoots system and has interaction with client After delivery

5.5 Stakeholders

In the business overview we can see who the actual stakeholders are. We can derive multiple parties with all different requirements. An extended requirement enumeration will be given in the next paragraphs for all the different stakeholders. We shall withhold us from any business requirements in this StRS, for that is something you need to register in a business plan.

5.5.1 External Stakeholders

External stakeholders are:

- User
- Maintainer
- Investor
- Authorities
- Shipyard

5.5.1.1 User requirements

As a user will probably be the operator, the following requirements will be effective:

Operating requirements:

- AMCS shall be intuitive to use
- AMCS will cover all alarm points and controls within the scope
- AMCS will provide clear and unambiguous layout
- AMCS will provide custom layouts for every Alarmstation
- AMCS will be optimized for different environmental situations
- AMCS will be fast to use and without annoyances, regardless the platform
- AMCS will provide immediate notification of alarms and adequate, additional, feedback
- AMCS will provide clear representation of data and indicate the positions of alarm limits

Documentation requirements:

- AMCS should be well documented but also manageable without a manual
- AMCS documentation shall be updated every release

Training requirements:

- Training will be provided on optional basis but will be highly recommended

5.5.1.2 Maintainer

As a maintainer will probably be the engineer, who is also an operator, much of the user requirements will apply. For the maintainer these extra requirements will be effective:

Spare parts requirements:

- Spare parts will be secured for future needs
- Parts will be mostly worldwide available
- AMCS will be built with own or 3rd party components that can be exchanged seamlessly

Logging requirement:

- Logging tools will be available for analysis and trending purposes
- A back-up of the latest system software status will be secured at Imtech's database, Also parameter changes on board will be secured in the returned ship data

Support requirement:

- System support and backing will be provided throughout life-cycle
- Service-centre support will be available on subscription basis
- Remote support will be available on subscription basis

5.5.1.3 Investor

The investor can buy the system for multiple reasons. Depending on the kind of use, there will be multiple requirements. Whether the investor buys a luxury yacht for recreation or a working-vessel as a tool to run a company these requirements can be quite different. Therefor these requirements will be spaciously available for the divers segments:

Investors needs requirement:

- AMCS should be maintenance free and trouble free
- AMCS should fulfil the operators wishes
- AMCS should be fully operational at all times With possibilities to restore problems on subscription basis within 24 hours, 48 hours or one week, depending on the kind of subscription
- AMCS pricing will need to relate to customers satisfaction and expectations on the product

5.5.1.4 Authorities

Authorities are the class bureaus that provide overall rules and regulations for the proper functioning of the AMCS. In some cases local authorities have additional rules AMCS must apply to as in Marine vessels.

Type and product approval requirement:

- Type approval shall be obtained as necessary
- Product approval shall be obtained where necessary through IAT and FAT
- AMCS will use approved components as necessary

5.5.1.5 Shipyard

The shipyard will most likely be the buyer, semi-installer of the AMCS. This can mean that they each have their own needs. Derived from a survey we conduct, we found the following requirements.

Delivery requirement:

- AMCS will be delivered following scope with easy to control demarcation
- AMCS will deliver clearcut installation schematics

Documentation requirement:

- AMCS will provide clear installation and commissioning manuals
- AMCS will come with an extended operator manual
- AMCS will come with additional component manuals

Training requirement:

- Additional training will be optionally available

5.5.1.6 Imtech

In many cases Imtech will be part of the installation process. If not the installation itself, Imtech will be involved in the commissioning of the installation. Most of the requirements in chapter 5.5.1.5 will apply on these stakeholder, with the explicit exception that the training will not be optional but mandatory.

5.5.2 Internal stakeholders

Internal stakeholders are:

- ACC
- Sales
- Operations
- Services

5.5.2.1 ACC

The ACC (Automation Competence Centre) will provide training, sales support, service support, product development, solution development and so on. The requirements of the ACC are not so much different than many of the external stakeholders besides the fact that they are also responsible for the development of the AMCS.

Development requirement:

- AMCS will have a clear change log system
- AMCS will provide a ticket system for problems and feature requests
- AMCS will follow a strict development strategy

Support requirement:

- AMCS will have training facilities to train the sales and service departments

Training requirements:

- AMCS will have distinctive training program for various stages
- Training will be given globally to all eligible persons
- Training will be sold separately

Documentation requirement:

- Documentation will be provided for every part of the AMCS as well internally as externally

5.5.2.2 Sales

Sales will be responsible for selling the AMCS as a solution. Whether it is as a single system or integrated in a bigger solution. Therefor sales has its own requirements.

Flexibility requirement:

- AMCS will be flexible in adding extra features
- AMCS will be flexible in integration with other systems

Documentation requirement:

- Flyers, folders and web based content will be widely available for the AMCS
- An excerpt of the user manual will be available for sales to know what they are selling

Training requirement:

- A targeted sales training will be available

5.5.2.3 Operations

Project management will need a different set of tools to work with. They form the oversight in the hierarchy that will keep things focused on fulfilling all the deadlines. Besides the requirements that already are set for other branches, they have a few type-specific requirements.

Management requirements:

- AMCS will have a clear to follow project system
- AMCS will be manageable top-down

Documentation requirement:

- AMCS documentation will be available

Training requirement:

- Project management will attend as well sales as technical training

5.5.2.4 Services

Services is the after sales for the AMCS. But, not to forget, they are also responsible for the customer satisfaction more than others. Services are the second line sales department. If the customer is happy they tend to recommend the system to others.

Knowledge requirement:

- Services are to be highly qualified technical engineers with a broad range of experience
- Services needs to have excellent knowledge of the AMCS

Documentation requirement:
- AMCS documentation will be available

Training requirement:
- Services needs to follow the mandatory training for the AMCS

6. Concept of proposed system

6.1 Operational concept

NavVision AMCS is designed to monitor all the attached I/O and check if the values are within the limits if necessary. All the gathered values will be shown on screens in an orderly way. If there is a value beyond its limit or any other alarm will occur, the AMCS will show the alarm and take any precautionary actions.

NavVision will start up in operational mode. Depending on the setting it can be set as an operator, a guest or as administrator.

Operator mode: mode where all the functionalities are available for a smooth interaction with the system. Almost no configuration possibilities.

Guest mode: mode where only viewing is possible.

Administrator mode: mode where all the functionalities of the program are available. Used for maintenance and for small changes by the crew.

Remote access: mode where qualified Imtech personnel can log in from remote (i.e. Imtech office) to configure and troubleshoot the system.

6.2 Operational scenario

NavVision AMCS will constantly watch all the attached I/O to check if they are in the normal position and/or within their respective boundaries. As soon as they will fall out of limit an alarm will be produced. This alarm will be heard in the appointed places (in a normal manned machinery space this will be in the machinery space and in the public spaces such as crew mess etc.). This alarm will only stop if the appointed engineer has accepted the alarm in the engine room.

In an unmanned machinery space it is possible to set duty for eligible people. This will point all the alarms to the station of the person on duty once the engine room is unmanned. Due to regulations the alarm in the engine room and de public spaces will still sound as well.

The AMCS can control dedicated parts of the installation. Whether it is automatically (i.e. turn a pump on when a black water tank is full) or manually (i.e. switch on/off certain devices). With the ACS (Automatic control system) it is even possible to automate even more functions through the built-in soft-PLC module.

All of this can be made graphically visible in various ways on mimics. These mimics are freely adjustable in their set-up.