Functions, form, and classification

Some assurance principles, using the E407 as basis

Vidar Åhjem, DNV
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Facing the environment; how do you define the requirements?

Describing operational expectations
Defining functions - characterising failure mechanisms
Sufficient safeguards throughout operations
Value creation is backed by a network of stakeholders

Functionality drives value creation. It depends on:
- What the performance is
- That failure is avoided
Words of many meanings ...

- Certification - Of something - What is being asserted?
- Classification - Assigning to category - How it the category defined?
- Approval - By someone - Who has the authority?
- Qualified - For something - What can he/she/it do?
- Proven - To some extent - What has he/she/it done?
- Tested - In a certain way - What were the conditions?
- Standard - A set of requirements - What does compliance entail?
- Assurance - To make sure - What’s the explanation?
Functions
Working capability and margins

Varying loads, varying temperatures, internal and external abrasion, rope twist, rope bending

Tension-bearing capacity

Useful tension level

New strength

Discard strength

3-T exhausted

Useful service life

Margin
Assuring functions by setting acceptance criteria for products and limits for use

- The right thing
- Made right
- Put together right

Acceptance criteria
- Engineering
- Manufacturing
- Commissioning

Validity
- Validated requirements

Hand-over to owner
- Condition
- Operation
- Application

Stated performance
- Designated purpose
- Designated service

Limits
- Given the right attention
- Used in the right way
- Used for the right thing
Taking knowledge and understanding into account
Validating the requirements

Technology assurance:

Validate acceptance criteria and limits

Customer need for assurance

Standardised scope of assurance

Validated scope of assurance
Classification

- Define the system for which we shall say something about functions and functionality
- Apply the basic assurance principle (the six arrows) to define the (certification) criteria and the (follow-up) limits to use
  - Use available knowledge and understanding to develop valid criteria and limits
  - Validate existing requirements for the case at hand
- Classify the system - the scope of assurance - according to the degree to which
  - Stakeholders are identified
  - Functions have been identified
  - Functionality has been assured
  - Requirements and impacts to super-systems are communicated
  - Requirements and impacts to sub-systems are communicated
- The big challenge: Testing for completeness, and residual uncertainty
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vidar.ahjem@dnv.com
+47 971 82 774

www.dnv.com