

Systems Engineering in Practice

Implementing systems engineering in any organization can be complex, therefore we have developed the **Systems Engineering Concept® (SEC)**. The SEC is a modularized concept built on practical processes, management frameworks and best practices for working with systems engineering for more than 30 years.

The challenges we face typically falls within three categories; system structuring and overview, system development and design, and system references across models.

We have therefore created modules that supports your organization from beginning to end on how to "do" systems engineering.



SEC toolbox

Maturity of working with System Engineering in practice

System structuring

System development

System reference model

M1

M2

M3

3 modules of best practices, process and tools to be built on top of each other for mastering systems engineering.

41%

of information is lost after four handovers.

Data integrity

Most organizations spend hours of rework due to unreliable data from handovers. A common language increases data integrity, which reduces the number of times each employee needs to revisit the information.

48180

Potential interfaces in a commercial airplane

Integration errors

Based on our data collected through years of assisting industrial clients, 8-22% of all potential interfaces are actual interfaces that need to be fully controlled in order to avoid costly errors.

1000x

More expensive in the last phases of a project

Costs to Extract Defects

Extracting defects are exponentially more costly, if discovered late in the project phase. Based on your project budget and warranty obligations, you can calculate the potential savings by implementing the SEC.



RDS 81346

SEC is build on the basis of the reference designation system from the ISO/IEC 81346 standard series. First step is to establish a common language across management and any technical discipline; a language that creates an unambiguous understanding of the system design from idea to operation, and retirement.

A set of building blocks

A classification scheme of entities, classified on the basis of their functional design.

G		object for providing a controllable flow
GA		generating object of electric energy powered by mechanical energy
	GAA	mechanical to electrical energy generating object of alternating current
	GAB	mechanical to electrical energy generating object of direct current
GB		generating object of electric energy powered by chemical reaction
	GBA	chemical to electrical energy generating object from a non-renewable source
	GBB	chemical to electrical energy generating object continuously fed by fuel and oxidant



Pragmatic grammar for defining and communicating systems and their relations

Systems breakdown and aspects, as well as the possibility to relate objects across various aspects.

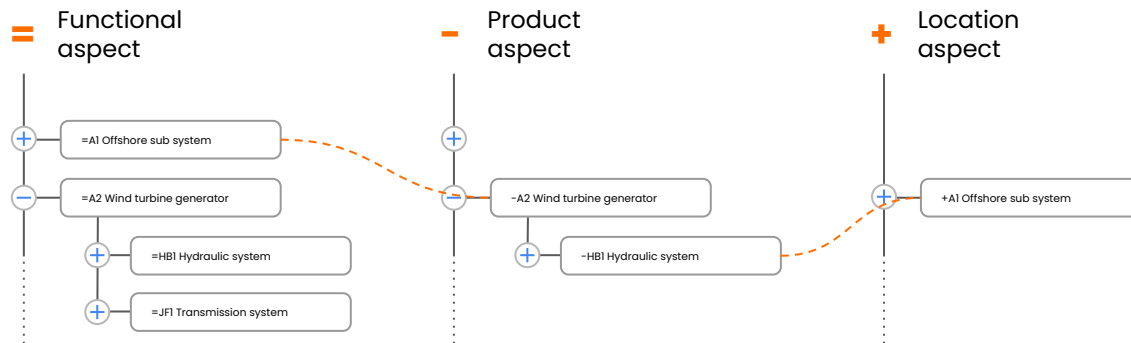
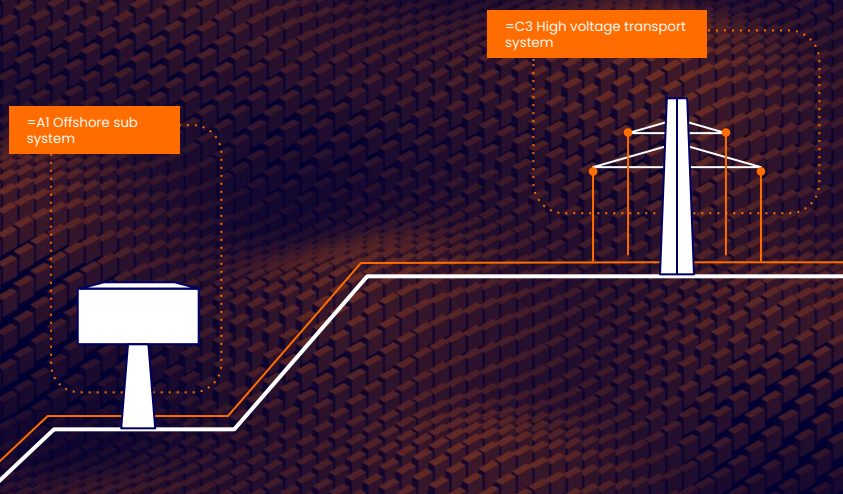


Fig. 2 Systems breakdown of a wind turbine generator from a functional, product and location aspect.

The ISO/IEC 81346 is an international standard about naming principles, structuring and relations for systems. It is a standardized naming convention for any technical object, and it helps to establish clear and unambiguous TAGs (labeling) to be understood across all disciplines. The labeling provides people and organizations with a basis for mutual understanding, and it is used as a tool to facilitate and enhance communication.



The Systems Engineering Concept

The Systems Engineering Concept is a knowledge-based concept proven to accelerate systems engineering in a business.

It is designed to manage complex projects by means of three modules specifically developed to fit your organisational needs and maturity level of systems engineering.

With the concept, an organization acquires explicit knowledge, actions and practical tools that enable any company to handle the complex business challenges of today.

Systems Engineering A/S

Systems Engineering A/S is the creator of the Systems Engineering concept.

We provide consultancy services on the implementation of the Systems Engineering Concept, read more about the M1, M2 and M3 modules, as well as recommended implementation roadmaps under the individual module sheets on systemsengineeringconcept.com

