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Aeronavtika - Vodenje programa - Izvedbena logika

Aerospace series - Programme management - Execution logic

Luft- und Raumfahrt - Programmmanagement - Ausführungslogik

Série aérospatiale - Management de programme - Logique de déroulement

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Aerospace series - Programme management - Execution logic

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Luft- und Raumfahrt - Programmmanagement - Ausführungslogik

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European foreword

This document (prEN 9241:2024) has been prepared by ASD-STAN.

This document is currently submitted to the CEN Enquiry.

1 Scope

The scope of the present document is to provide the elements needed for elaborating the programme execution logic and drafting the execution plan for the realization of a product.

NOTE 1   In this document, the term "logic" alone is sometimes used for "execution logic".

NOTE 2   In this document, the term "product" is used to designate the object of the program concerned, and the term "system" is used to designate the product for anything related to system engineering.

NOTE 3   The product is also considered a "system-of-interest" and its enabling systems are also taken into account.

The execution logic and plan enable customers/suppliers to reach an agreement on how their respective processes and activities can be organized.

The aim is to enable each actor in the programme to manage their activities with sufficient visibility of the sequencing of the other stakeholders' activities.

This document belongs to the documents supporting EN 9200 relating to the programme management specification.

The present document describes the principles of programme execution logic and defines the corresponding management requirements. This description is supplemented:

— on the one hand, in terms of execution logic principles, by:

   o   the challenges of a basic logic common to all actors (synchronization);

   o   the applicable criteria to set up this basic logic;

   o   the translation of this logic into the programme processes;

— on the other hand, in terms of implementing the execution logic, by:

   o   the procedures for practical implementation of the management requirements defined in EN 9200;

   o   adaptations of the logic according to the various constraints and specificities of the programme, and justification of these adaptations;

   o   the consistency between the basic logic at system level and the logics at subsystem and constituent levels.

The breakdown of clauses as used in this document gives a gradual understanding of the approach to be adopted to construct an execution logic. For instance:

— Clause 5 presents the end-purpose of a programme execution logic as well as the associated basic concepts and the constituents of this logic;

— Clause 6 describes and characterizes the process for building the logic;

— Clause 7 concerns change control to the execution logic;

— Clause 8 concentrates on the importance of capitalization and lessons learned.

This document applies to aeronautical, space and defence programmes. The principles can be extended to other areas of activity.

It applies to realization of a single product, of several samples or of a series. It applies to any customer/supplier level, while ensuring consistency between successive levels.

The principles described concern all programme actors, from initial expression of need through to closure of the programme.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
life cycle (of a product)
set of successive maturity states that the product takes during the different phases of a programme

Note 1 to entry: States of maturity during which the product is gradually processed are typically: concept, development, realization, use including in-service support, disposal.

Note 2 to entry: The life cycle is generally illustrated as a series of stages, from production (extraction and harvesting of raw materials) to final disposal (disposal or recovery), including manufacturing, packaging, transport, use and recycling or disposal.

Note 3 to entry: Notion not to be confused with life profile.

3.2
life cycle (of a programme)
set of phases that a programme passes through from its initiation to its closure

Note 1 to entry: The phases of the programme are typically: initial expression of need, feasibility, definition, development, production, operation, disposal.

Note 2 to entry: The life cycle is a structured and exhaustive scenario, elaborated as a common reference for all stakeholders concerned and aimed at taking account of all contexts and processes in which the product shall be involved during its life.

3.3
milestone
significant and planned event used to measure the progress of a programme to allow the next phase to start

3.4
execution logic
phased and articulated sequence of activities, tasks and milestones covering the entire lifecycle of the product

Note 1 to article: Execution logic enables each actor to control own activities and coordinate them with those of the other actors.

3.5
phase of a programme
period of a programme, delineated by milestones, during which a coherent and orderly set of activities is performed to achieve an objective

3.6
process
sequence of correlated or interacting activities that transforms inputs into outputs according to one or more defined objectives

Note 1 to entry: The inputs of a process are usually the outputs of other processes.

Note 2 to entry: A process shall be planned and implemented under controlled conditions.

Note 3 to entry: A process is characterized by the following elements:

— object;

— objective(s);

— inputs, including prerequisites;

— results/purposes/effects;

— criteria of success;

— rules;

— constraints;

— definition and organization of activities;

— means (human and technical resources) to be implemented;

— methods to be applied.

Note 4 to entry: The French term "*procédé*" is generally used in the context of manufacturing processes. A process is called "special process" when the conformity of the outputs cannot be verified by subsequent monitoring or measurement and requires special provisions for process control.

3.7
product
result of activities or processes

Note 1 to entry: Product categories can be services, hardware, software, processed materials, intermediate work products from elementary activities, such as documents, models, etc.

Note 2 to entry: In the frame of a product developed to satisfy a customer's need, the processes involved are the expression of the need, the establishment of the definition, the industrialization and the production.

Note 3 to entry: The product can be either a final product to be delivered to a customer (aircraft, equipment, etc.) or one of its components. In both cases, it represents the supply due under the contract.

3.8
programme
coordinated set of technical, administrative and financial tasks, intended to design, develop, realize and use a product, satisfying a need under the best performance, quality, cost and time conditions as well as ensuring the support of it and finally the disposal

Note 1 to entry: All or part of a programme can be designated also in the industrial world and in some normative texts by the words "project", "contract", etc.

Note 2 to entry: When the notion of programme is associated with an overall system, the notion of sub-programme or project is frequently used when addressing the constituents of this system.

3.9
review
systematic review of the results achieved at a given point in a programme to determine their suitability, adequacy and effectiveness to achieve the defined objectives

Note 1 to entry: The review is a decision aid but shall not be confused with decision making.

3.10
system
arrangement of parts or elements that together exhibit a stated behaviour or meaning that the individual constituents do not have

Note 1 to entry: A system is sometimes considered as a product or as the services it provides.

Note 2 to entry: In practice, the interpretation of its meaning is frequently clarified by the use of an associative noun, e.g. aircraft system, weapon system, etc.

Note 3 to entry: A complete system includes all of the associated equipment, facilities, material, computer programs, firmware, technical documentation, services, and personnel required for operations and support to the degree necessary for self-sufficient use in its intended environment.

[SOURCE: ISO/IEC/IEEE 15288:2023, modified — Note 2 to entry incomplete]

3.11
enabling system
system that supports a system-of-interest during the phases of its life cycle

EXAMPLE Production-enabling system, support system, qualification system, infrastructures, deployment system, etc.

Note 1 to entry: Each enabling system has a life cycle of its own.

[SOURCE: ISO/IEC/IEEE 15288:2023, modified — Note 1 to entry incomplete]

3.12
system-of-interest
SOI
system whose life cycle is under consideration

[SOURCE: ISO/IEC/IEEE 15288:2023]

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3.13
task
description of what needs to be accomplished, under set conditions, to achieve an expected and identified result

Note 1 to entry: A task corresponds to an elementary action of a process. It uses identified resources which may include personnel, finances, facilities, equipment, techniques and methods.

4 List of acronyms

ABL	Allocated baseline
CDR	Critical design review
COTS	Commercial off-the-shelf
DDF	Definition data file
DJD	Definition justification dossier
DJP	Definition justification plan
ELR	End-of-life review
FACI	First article critical inspection
FBL	Functional baseline
FPS	Functional performance specification
FR	Feasibility review
IIR	Individual inspection register
ITAR	International traffic in arms regulations
IVV	Integration, verification and validation
MDR	Mission definition review
MIF	Manufacturing and inspection file
MRL	Manufacturing readiness level
(N)TS	(Need) technical specification
ORR	Operational readiness review
PBL	Product baseline
PDR	Preliminary design review
PL	Product logbook
PRR	Production readiness review
QR	Qualification review
REACh	Registration, evaluation, authorization and restriction of chemicals
RJF	Requirements justification file
SOI	System-of-interest
SRR	System requirements review
TPS	Technical purchase specification

TRL   Technology readiness level

TRR   Test readiness review

UF   User file

5   Execution logic: end-purpose, concepts and constitutive elements

5.1 End-purpose of programme execution logic

The execution logic is a component of the management reference common to all actors in the programme. Its end-purpose is to coordinate and synchronize all the activities, taking account of the constraints and compromises made, the expected results (performance, quality, costs, schedule) and the accepted risks.

Programme execution logic is a programme management approach that:

— reflects the product acquisition strategy;

— allows actors to situate their activities and supplies with respect to the overall programme execution;

— identifies and plans the milestones allowing defined goals verification, decision-making and obtaining the data needed for this decision-making.

This logic is part of the execution plan.

6   Concepts

6.1 Programme execution logic

The programme execution logic describes the sequencing of its component elements.

This sequencing represents the sequence of:

— actions and work (work packages, activities or tasks);

— milestones and stop points;

— document productions including contractual deliverables.

The execution logic is described for each level of the technical breakdown structure (or work breakdown structure), from the "customer" level of visibility to the work execution levels.

The level of visibility given to each actor within a programme (visibility given to programme actors and/or visibility of the scope of the other programme actors) is to be contractually defined.

The execution logic integrates both the programme's own work and milestones, and work and milestones interfaced with the programme (external entry and exit points).

The execution logic results from programme execution technical (performance), schedule, budget, resource, strategic (policy, industrial policy, etc.) constraints.

6.2 Execution plan

An execution plan is the document drawn up by a supplier in reply to the execution requirements which are applicable and which formalize its execution logic.

An execution plan describes, at product and constituents' level:

— the planned scenario (logical and time-based) for execution and its possible variations, providing the assurance that the objectives will be reached;

— inputs and outputs to the interfaced actors or processes;

— the necessary and allocated human and material resources;

— the schedule;

— the financing commitments.

This execution plan can be stand-alone or completed and detailed by phase, depending on the size of the programme and the industrial strategy, through one or more specific plans such as:

— the development plan (see RG.Aero 000 42);

— the industrialization plan (see RG.Aero 000 48);

— the production plan (see RG.Aero 000 43);

— the integrated logistic support plan (see RG.Aero 000 76);

— the disposal plan.

The supplier ensures that the execution plan and the plans identified in the execution logic are consistent.

Each supplier is responsible for ensuring the synthesis and consistency of its suppliers' execution plans with each other and with its own execution plan.

NOTE   At the level furthest upstream, if the customer finds itself faced with several suppliers, it can be necessary to entrust elaborating and monitoring of the programme execution plan to an entity specifically mandated for this purpose.

An example of an execution plan template is given in Annex A.

6.3 Constitutive elements of execution logic

6.3.1 Strategy elements

6.3.1.1 Industrial strategy elements

Construction and validation of the execution logic take account of the opportunities and constraints related to the programmes' portfolio and products' portfolio (optimization of multi-programme products – see C.3).

Construction and validation of the execution logic take account of the industrial policies (choice of industrial manufacturers and partners), as well as the European, bilateral or international policies.

6.3.1.2 Product strategy elements

Construction and validation of the execution logic are also based on the product strategy covered by the products' portfolio (product family, product renewal and change, complementarity of products, reusability).

They are also to be adapted according to the expected number of items (series production products, unitary products).