

ECSS-M-20A

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Space Project Management

Project Organisation

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Foreword

This standard is one of the series of ECSS Standards intended to be applied together for the management, engineering and product assurance in space projects and applications. ECSS is a cooperative effort of the European Space Agency, National Space Agencies and European industry associations for the purpose of developing and maintaining common standards.

Requirements in this standard are defined in terms of what must be accomplished, rather than in terms of how to organise and perform the necessary work. This allows existing organisational structures and methods to be applied where they are effective, and for the structures and methods to evolve as necessary without rewriting the standards.

The formulation of this standard takes into account the existing ISO 9000 family of documents.

This standard has been prepared by the ECSS Management Standards Working Group, reviewed by the ECSS Technical Panel and approved by the ECSS Steering Board.

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Introduction

To meet the project objectives, the project organisation shall be based on standard requirements covering unambiguously all the roles and responsibilities of each actor, their interaction in terms of authority and related reporting.

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Scope

The present document, 'Project Organisation', is part of a collection of ECSS standards belonging to the management branch.

The purpose of this ECSS standard (ECSS-M-20) is to define the project organisation standards required to provide satisfactory and coherent control of space projects.

The requirements specified herein apply to, and affect the supplier and customer at all levels, when the capability to design and supply conforming product needs to be demonstrated. These requirements, as tailored in the related Project requirements document are applicable to any actor of a space project.

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References

2.1 Normative References

This ECSS Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these apply to this ECSS standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

This ECSS standard belongs to the Space Project Management series called up by the 'Policy and Principles' standard ECSS-M-00. The standards listed below shall be considered in association with this document.

- ECSS-M-10 Project Breakdown Structures.
- ECSS-M-30 Project Phasing and Planning.
- ECSS-M-40 Configuration Management.
- ECSS-M-50 Information/Documentation Management.
- ECSS-M-60 Cost and Schedule Management.
- ECSS-M-70 Integrated Logistic Support.

The applicable revision index shall be that valid at the time the Project Requirements Documents are created.

2.2 Informative References

- RG Aéro 00040 General Recommendation for the Project Management Specification.
- CNES IM-10-00 Organisation du Programme.
- MR-P/01 Management Requirements on Industrial Contracts.
(supersedes ESA PC/941904/TD/510)

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Definitions and Abbreviations

3.1 Definitions

For the purposes of this standard, the definitions given in ECSS-P-001 Issue 1 apply. In particular, it should be noted that the following terms have a specific definition for use in ECSS standards.

Applicable Document
Business Agreement
Configuration
Contract
Contractor
Cost
Customer
Data
Document
Documentation
Implementation Document
Information
Milestone
Phase (Project Phase)
Process
Project
Project Requirements Document
Purchaser
Resource
Space Element
Space System

Supplier
System
Task
Work Package

3.2 Abbreviations

The following abbreviations are defined and used within this standard.

Abbreviation	Meaning
ECSS:	European Cooperation for Space Standardization

In this ECSS standard, in order to facilitate reading and traceability, the requirements are listed according to numbered topics. Each numbered requirement is composed of a general wording (**bold text**), and often by an explanatory text attached to the general requirement and an expected output (*text in italics*).

Organisation Requirements

4.1 General Organisation Requirements

The project organisation is the structured assembly of human and material resources that are used to carry out the project. The project organisation is defined by describing:

- the roles, responsibilities, authority and reporting lines of the people participating in the project,
- the situation of, configuration of, and responsibility for, the material resources allocated to the project.

4.1.1

Within each actor's organisation, the individual responsible for the definition and set-up of the project organisation shall be identified.

AIM: Establish accountability.

EXPECTED OUTPUT: *Documents identifying those with responsibility and authority to set up and amend the project organisation.*

4.1.2

Each actor shall define and implement the organisation relative to his level.

AIM: A complete definition and implementation of a project organisation with clear roles and responsibilities for all participants.

The responsibilities for project management and business agreement-signing authority shall be defined.

If the project has links with other projects, the responsibilities relating to the definition and the management of interfaces shall be specified and taken into account when setting up the project organisation.

EXPECTED OUTPUT: – *resumes of key personnel,*
– *an element of the Implementation Document for Project Organisation,*
– *a nominated Project Manager.*

4.1.3

The customer at every level, and where appropriate the consumer, shall tailor the organisational standards and requirements, so as to impose the minimum requirements necessary to achieve the project objectives.

AIM: Reduce costs and cycle-times by using existing industrial structures wherever practicable.

EXPECTED OUTPUT: *Standards and requirements required to meet project objectives specified in the Project Requirements Documents.*

4.1.4

The consumer, customer and supplier shall define, document and communicate the roles, responsibility and authority of key personnel, throughout the project organisation.

AIM: Achieve a common understanding of roles, responsibilities and authorities throughout the project organisation.

The Project Implementation Documents shall define the following in detail:

- the organisation to be set up, according to the phases of the project,
- how and to whom this organisation shall apply (the actors in question, and their responsibilities).

Any change shall be traceable through update of the applicable documents.

EXPECTED OUTPUT: *Documented and communicated roles and responsibilities for the project personnel.*

4.1.5

Each actor shall nominate a project manager who shall have the authority to represent his organisation and make, or obtain in a timely manner, all the decisions necessary for all the relevant subjects to the project.

AIM: Single point of responsibility and authority for execution of the project.

He/she shall have direct access to a level of management which is able to make the required level of resources available to him/her.

EXPECTED OUTPUT: *A nominated project manager with the required authority and responsibility.*

4.1.6

All the work necessary for completing the project shall be covered by a set of business agreements, between the project actors, tied to the organisation.

AIM: Achieve a comprehensive and unambiguous statement of required project outcomes.

The customer shall, to the greatest extent practicable, define his requirements, in line with the ECSS standards, independent of the manner in which the said requirements will be fulfilled by the supplier.

Business agreements shall be prepared for all suppliers reporting to a customer. No aspect shall be addressed more than once.

EXPECTED OUTPUT: *Signed project business agreements.*

4.1.7

Business agreements shall cover all relevant aspects of project activity either directly or, preferably, by reference to applicable documents.

AIM: Use as far as practicable existing relevant methodologies and procedures.

EXPECTED OUTPUT: *Signed project business agreements.*

4.2 Management Interface Requirements

4.2.1

Each actor in developing their response to the full set of ECSS standards imposed upon them, shall ensure that coherence is maintained throughout all disciplines and functions within their organisation.

AIM: Avoid conflict and overlap in the project Implementation Documents.

EXPECTED OUTPUT: *Implementation Documents responding to the ECSS standards.*

4.2.2

Each supplier's Project Manager shall regularly report on work progress to his customer.

AIM: Provide visibility to the customer on the supplier's project activities.

The Progress Report shall contain as a minimum:

- the project manager's personal assessment of the current situation in relation to the forecasts,
- a status report indicating the progress of work being done by the supplier,
- a consolidated report derived from the lower-level status reports.

As a contribution to the overall risk management of the project, it should also draw attention to:

- trends in the development of the project,
- problems areas and remedial actions,
- status report indicating progress on all actions since the previous report,
- planning for actions to be engaged and proposed solutions.

EXPECTED OUTPUT: *Regular progress reports from the supplier's project manager to his customer.*

4.2.3

A supplier's Progress Report shall be based on Work Packages and the corresponding schedules.

AIM: Ensure consistency between the technical status and the schedule report, and give an integrated view of the overall progress status and support decision making.

EXPECTED OUTPUT: *Defined part of the Progress Report (See 4.2.2).*

4.2.4

The Progress Report periodicity and format shall be defined in the Project Requirements Documents.

AIM: Adapt the submittal frequency to the requirements and the nature of the project and project tasks.

EXPECTED OUTPUT: *Regular Progress Reports to a format agreed between each customer/supplier pair.*

4.2.5

Formal meetings between the supplier and customer shall be held to discuss major deviations from the planning described in the Implementation Documents, or to discuss major changes proposed to the Project Requirements Documents.

AIM: Ensure that understanding, consensus, agreement and approval are achieved concerning all the major project issues.

Face to face communications should be used only when significant value to the project will be obtained, when there is something of importance to communicate, and other forms of communication are unlikely to provide the necessary results. Meetings convened solely on the basis of periodicity should be avoided.

To ensure that such meetings meet their objectives, the following should be considered:

- define the subjects to be discussed, and the goal for each.
- define the required inputs to the subjects to be discussed.
- define the participants required, and their role for each of the subjects to be discussed.
- convene the meeting with sufficient notice (generally a week in advance), except in cases of urgency.
- define venue, date and time precisely.
- inform the next higher customer in case he wishes to act as an observer.
- appoint a minutes secretary at the start of the meeting. The minutes shall in preference be taken on the spot, and signed after the meeting by the parties involved.
- circulate the minutes to the participants.

EXPECTED OUTPUT: – *Infrequent but focused customer/supplier meeting,*
– *Minutes,*
– *Actions item list.*

4.2.6

Each contractor shall provide his purchaser access to his facilities and relevant data, e.g. for audit, inspection, inquiry, or other exceptional events not covered by routine management interaction, within the framework of the contract.

AIM: Allow the purchaser access to the contractor when on-site verification is performed.

Relevant data include date, time and location of, required information on, all the relevant project activities.

EXPECTED OUTPUT: *Purchaser access to contractor facilities as contractually agreed.*

4.2.7

Every contractor shall accept to be assessed, against statutory requirements incorporated in the contract, by the purchaser or by a third party agreed between the purchaser and the contractor.

AIM: Allow the purchaser to evaluate the contractor against the contractual statutory requirements.

The contractor shall have the right to demand that the assessment be performed by a third party, and that the third party obtain authorisation each time the audit necessitates access to information concerning patent rights or confidentiality associated with defence secrecy.

EXPECTED OUTPUT: *Contractor assessment against statutory requirements.*

4.2.8

All the assessments, including audits, required by a purchaser shall be preceded by adequate preparation and collaboration with the subject contractor.

AIM: Ensure the assessments are performed in a planned, controlled and productive manner.

The customer shall notify the supplier in good time of:

- his intention to perform (or to delegate performance of) the assessment,
- the objectives sought by, and the limits of, the assessment,
- the designated assessor and his terms of reference,
- the assessment schedule.

EXPECTED OUTPUT: *Advance notice of the purchaser's assessment intentions documented and communicated to the supplier at a time greater than or equal to the agreed period of notice.*

4.2.9

Every assessment performed shall be followed by a report prepared by the assessor and shall contain the views of both parties.

AIM: Ensure that assessment results are properly documented.

The conclusions of the assessment, and the draft report, shall be discussed with the contractor, before finalisation and release. In the event of disagreement with any of the assessment conclusions, the contractor has the right to add his observations and comments.

When finalised, the assessment report shall not be divulged without the agreement of the assessed contractor.

EXPECTED OUTPUT: *Agreed assessment report.*

4.2.10

An action-monitoring system shall be defined and implemented by each actor.

AIM: Allow recording and follow-up of actions decided for the project (after meetings, assessments and reviews), up to their conclusion (close-out).

Each action shall be allocated:

- a unique identification within the project,
- the identification of the origin (meeting etc.),
- the initiator,

- the description of the action (clear and concise),
- the person responsible for the action,
- the close-out date,
- the current status,
- the close-out reference (document, letter etc.).

When reporting progress at the individual supplier level, the report shall contain a list of actions opened and closed.

EXPECTED OUTPUT: *Implemented action monitoring system.*

Roles, Responsibilities and Authority

The general requirements for roles, responsibilities and authority are covered in clause 5 of ECSS-M-00. Elaborated below are the more detailed requirements.

5.1 All Levels

5.1.1

If an actor is responsible for more than one business agreement within a project, and the business agreements have different customers, then each business agreement shall be clearly identified and accomplished according to the appropriate relationships.

AIM: Ensure execution of work in accordance with the defined relationships.

EXPECTED OUTPUT: *The proper independent satisfaction of each customer's requirement.*

5.1.2

Each project shall include an end-of-project assessment of the lessons learned. This assessment shall be part of the end-of-project deliverable for each actor.

AIM: Identify potential improvements in the management of projects.

The lessons-learned assessment should consider:

- An analysis of each significant incident (or anomaly) encountered during a project.
- The behaviour of the products delivered, (e.g. satellite behaviour in orbit), including aspects pertinent to ILS.
- Flaws of management requirements, systems and processes.
- Identification of cost and schedule drivers.

EXPECTED OUTPUT: – *Project lessons learned report from each supplier to his customer;*
– *possible improvement of risk management process for future activities.*

5.1.3

The first level customer/consumer shall consolidate the lessons-learned assessments and the recommendations to update the ECSS series standards and their implementation.

AIM: Ensure continuous improvements in the management of projects.

EXPECTED OUTPUT: *Recommendations to update ECSS standards and their implementation.
Improved effectiveness of future projects.*

5.1.4

Where an actor employs consultants or other specialists to assist him in performing his duties, then the roles, responsibilities and authority of these consultants and specialists shall be clearly defined.

AIM: Clear allocation of project roles, responsibility and authority.

EXPECTED OUTPUT: *Definition of support roles, responsibility and authority.*

5.1.5

The contractor shall grant the right for his purchaser to delegate all or part of its prerogatives to a third party.

AIM: Allow the purchaser to obtain the required visibility in the most cost effective manner.

Prerogatives can cover visibility on the lower tier contractors.

The companies concerned shall be informed of the tasks delegated to the third party and the way in which they will be performed.

The third party shall be subject to the same confidentiality rules as the purchaser's personnel.

EXPECTED OUTPUT: *Related contract clause(s).*

5.2 Consumer

5.2.1

The consumer shall define the performance and availability requirements of the project outputs; he shall also identify all the project constraints, including those of a political or economic nature.

AIM: Ensure complete and unambiguous definition of project boundaries.

It is necessary for the consumer to maintain the definition of project performance requirements and constraints throughout the life of the project.

EXPECTED OUTPUT: *Complete set of fully up-to-date project requirements and constraints.*

5.2.2

The consumer shall identify the source of project financing, and any restriction on its availability.

AIM: A clear understanding of financial opportunities and constraints.

5.3 First Level Customer

5.3.1

The first level customer shall define the performance, the availability and the implementation requirements of the system taking into account all the project constraints identified by the consumer.

AIM: Ensure complete and unambiguous definition of the project boundaries.

EXPECTED OUTPUT: *Complete set of requirements and constraints for the next level supplier.*

5.3.2

The first level customer shall verify supplier compliance with the agreed requirements and constraints.

AIM: Ensure compliance of the system with the specified requirements.

EXPECTED OUTPUT: *Compliant product.*

5.4 First Level Supplier

5.4.1

The first level supplier shall respond to the first level customer's requirements with a demonstration of specification compliance, a response to the politico/economic constraints, and the supply of compliant system.

AIM: Deliver compliant system in accordance with the customer's requirements and constraints.

EXPECTED OUTPUT: *Compliant product.*

5.5 Supplier as Customer

5.5.1

Where a supplier has lower level suppliers, he shall act as a customer as specified in sub-clause 5.3.

AIM: Deliver compliant product in accordance with the customer's requirements and constraints.

EXPECTED OUTPUT: *Compliant product.*

5.6 Customer as Supplier (Customer Furnished Product)

5.6.1

When a customer supplies product to lower tier actors he shall discharge the full responsibilities of a supplier as identified in 5.4.1 in respect of that product.

AIM: The same rules apply to all the suppliers.

EXPECTED OUTPUT: *Proper definition of responsibilities.*

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Generation of Organisation Documents

6.1 Customer Requirement

The Project Requirements Document for Project Organisation is a business agreement document that prescribes the requirements to be met by suppliers as regards activities associated with the conduct, organisation and management of a given project. During the course of the project, the services provided by these suppliers can be covered by distinct and successive business agreements, to which the Project Requirements Document will be appended. The Project Requirements Document for Project Organisation defines requirements and the resulting Implementation documents once agreed form the project management rules.

6.1.1

The customer (or consumer, as the case can be) shall draw up as part of the Project Requirements Documents project organisation requirements for the next level supplier.

AIM: Devolve those requirements necessary for successful project execution.
Organisation.

EXPECTED OUTPUT: *Supplier project management requirements,
Organisation.*

6.2 Supplier Response

6.2.1

Each supplier in the project shall produce an Implementation Document describing how he intends to meet the requirements of the relevant Organisation Project Requirements Document, in respect of his own organisation.

The Implementation Document drawn up by each supplier will specify in particular how the supplier intends to incorporate the requirements of the relevant Organisation Project Requirements Document in respect of his own suppliers, including a compliance matrix.

The supplier shall submit his completed Implementation Document to his customer for acceptance, together with any succeeding version. After acceptance, this document becomes an integral part of the business agreement.

The Organisation Implementation Document shall meet the requirements of the Project Requirements Document to the satisfaction of the customer and should cover:

Organisation:

- responsibility and authority of the participants,
- resource requirements,
- personnel qualification and training,
- interrelation between the participants,
- business agreement aspects between the participants,
- the organisational structure of the supplier and a definition of the responsibility and authority of personnel who manage, perform and verify work affecting project performance.

Resources to be employed:

- facilities and logistics (offices, clean rooms etc.),
- information technology (hardware and software),
- information systems,
- personnel qualification and training,
- project documentation.

EXPECTED OUTPUT: *Element of Implementation Documents describing how the supplier's project organisation will meet the Project Requirements Document requirements.*