QUALITY MANAGEMENT MANUAL

(English version: in case of any differences due to the translation, the French version takes precedence)

Written by:

<table>
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<tr>
<th>Bertrand FISCHER</th>
<th>Florence ROUDOLFF</th>
<th>Delphine BONNAUD</th>
<th>Marianne LYONNET</th>
<th>Patrick WAGNER</th>
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<td>Quality Manager</td>
<td>DRIM Director</td>
<td>DSFM Director</td>
<td>DSMA Director</td>
<td>DS Director</td>
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Application date: 2017-03-01
### Past Events

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<th>Version Révision</th>
<th>Date</th>
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<tr>
<td>7.0</td>
<td>January 2006</td>
<td>Integration of DRIS Department in the Quality Manual.</td>
</tr>
<tr>
<td>10.0</td>
<td>October 2010</td>
<td>DRIS out of GMT quality management system. New version of process description.</td>
</tr>
<tr>
<td>12.0</td>
<td>January 2016</td>
<td>Evolution of process flow chart: modification of process P1 (Proposal), process P2 (Contract) and process P5 (Develop new techniques for future); creation of process P14 (Carrying out HSE actions). New version of process description (V6).</td>
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QUALITY POLICY

Over the years ONERA/DS has built up a solid reputation in aerodynamic wind tunnel tests for obtaining reliable measurement results. Customers also appreciate the backup service and openness of the exchanges. This reputation needs to be even further enhanced to ensure the continuing success of DS and its wind tunnels. DS puts also its skill in testing engineering at his clients’ disposal.

To carry on this activity DS’s quality policy is guided by the following main principles:

• seeking maximum customer satisfaction, notably in relation to advice, technical results, and staying within budget and time limits;
• taking into account other stakeholders such as regulators and inspection, staff and residents (labor safety and environmental protection);
• focus on customers and keeping up with developments in the outside world enable us to choose the best direction for technical developments and investment;
• mastering the delegation of responsibilities of the personnel at all levels within the organisation in order to increase their implication in making improvements;
• clear internal communication so that each individual contributes to the same objectives;
• elaboration of a 10 years global outlook about: needs of infrastructure consolidation and upgrade; needs of methods and technique development in the purpose of keeping at the best level; building a middle term business plan.

The quality management system is built around the Testing and Engineering sites, and support these main principles by:

• careful attention to customer satisfaction and other stakeholders;
• facility business control with a good balance between needs and resources;
• mastering the improvement process, including skills management, technical developments, investment…;
• a risk control and look for opportunities on all processes;
• creating a permanent awareness of personnel safety, installation and data protection.

DS management is committed to meeting these requirements through its policy and associated objectives, and to continuously improving the quality management system. DS’s quality management system was designed with this in view and is applicable to all personnel for the design, development and carrying out of tests.
Scope:

This manual describes DS’s internal organisation and its role within ONERA. It presents the main elements which make up the quality management system. Its goal is to inform stakeholders, mainly both present and future clients, as well as the personnel, of the principles which guide quality management at DS.

This manual and processes apply to all different DS sites in the following areas:
- test design and performance on site,
- test method research, model design and building, test set-ups, related metrology, engineering works and test means.

ONERA/DS Test Facilities:

Modane-Avrieux Centre:
- S1MA Continuous sonic wind tunnel
- S2MA Continuous transonic and supersonic pressurised wind tunnel
- S3MA Transonic and supersonic blowdown wind tunnel
- S4A Hypersonic blowdown wind tunnel
- S4B Calibration bench
- BD2 Dynalpy test bench
- R4 Specialised test bench (test bench, cascade, …)
- TURMA Turbine test bench

Fauga-Mauzac Centre:
- F1 Continuous low speed pressurised wind tunnel
- F2 Continuous low speed atmospheric wind tunnel
- F4 High enthalpy hypersonic wind tunnel
- CEPRA19 Continuous aero-acoustic wind tunnel (Saclay)
The director is in charge of DS organisation. He defines organisational structure and proposes the nomination of departmental heads who are formally approved by the ONERA President. The Director DS approves the job definitions of the managers who report directly to him.

The departments are organised in groups. The Directors supervise the heads of department and groups, who are responsible for day to day management in relation to delegated responsibilities.

Regular DS management reviews ensure that the organisation corresponds to an effective quality management system. The management review extends to the departmental level to ensure harmonisation between local and top management objectives.

The heads of departments and groups organise the structures for which they are responsible, define needed responsibilities and contribute to the management of personnel skills. The DS management approves the organisation and nominations in the different divisions, departments and groups. The heads of division and departments organise personnel training with assistance of local HR services.

Annual progress reviews between staff and line managers are held once a year during which the year’s work is reviewed and training needs defined. This process develops coherence between the organisation, personnel skills and the needs of the quality management process.
**Quality Management System:**

A quality management system (QMS) has been set up to apply the policy and goals of the DS management. This system is based on the ISO 9001:2015 standard.

The QMS consists of a set of dynamic and interacting processes and resources set up by DS to provide services to its clients (and to satisfy other stakeholders). All activities are carried out in accordance with the quality documents to meet technical needs, while remaining within agreed budget and time limits.

**Listening to customer needs:**

DS pay particular attention to customer requirements, and this is organised at several levels:

- bi-annual meeting with constructors which brings together DS’s main national clients; these meetings enable DS to present the main technical innovations developed by DS (improvement of means and methods to meet clients’ medium and long term expectations);
- regular top management meetings with main clients as part of partnership contracts;
- post-test reviews with the client’s participation enabling clients to express ways of improving;
- end of contract reviews during which customer satisfaction can be assessed;
- during the whole implementation process, customer complaints and demands are recorded and dealt with.

Needs and expectations of other DS important stakeholders (internal/external) are identified, taken into account and regularly reviewed due to adapted arrangements of the QMS.
Process control:
The manual describes the major processes involved in providing customer services, support services and management. The guiding principle is that these form part of a process of continuous improvement. For DS this means:

- identifying the processes needed for the quality management system and their application throughout the organisation (these processes have their own identification sheet)
- determining process sequence and interaction;
- determining the criteria and methods to ensure control of the processes: effectiveness is assessed by measuring the extent to which quality goals have been achieved;
- ensuring that resources are made available and that information flows in order to set up and check the processes;
- overseeing, assessing and analysing the processes (indicators, risks);
- setting up whatever actions are needed to continuously improve the processes.

ONERA support (processes partly outsourced):
Certain tasks are supported by other ONERA departments such as human resource management, purchasing, infrastructures etc. These services follow procedures created by ONERA and piloted by DSSQ (QMS certified ISO 9001). They are measured as required by DS (audits, process reviews) corrective and preventive actions are in place if necessary (use of a common tool for querying and processing improvement actions). All audit reports and all actions in progress are accessible to DS.

All DQO QMS processes have a driver DS (according to correspondence table).

The ONERA audit and improvement procedures are validated by DS (signatory central ADQ as checker).

In addition, the DS Director is a member of the ONERA COMEX (Executive Committee). He works with departments concerned whenever necessary. He negotiates directly with the President of ONERA budgets and the necessary recruitment.

Further meetings between DS and DA (Purchasing department), at a management level and on a monthly basis, provide special monitoring of strategic procurement (such meetings are subject to reporting).
Management of Risks/Opportunities:

DS identify and implement a risk/opportunity management at different levels:

- overall processes (with periodic review);
- at each client performance by means of a preliminary risk analysis during the proposal review, followed by a risk review done later during the preparation of the production process;
- in the design stage for all facility renovation projects, in accordance with adapted analysis methods (such as Hazop method);
- at a regulation level, included in the professional risk management.

Management of Knowledge:

DS identify the key knowledge necessary to the process implementation, and to reach the conformance of products and services: régulation, feedback, knowledge sharing, etc.

Knowledge management includes skills but also technical, scientifical, organisational sides, etc.

This knowledge is stored as information (documented or not), or simply detained by human resources: experience/skills, organisation, applicable and reference documents (technical procedures / operating modes), storage (PV/RT, folders, technological files).

Documentation don’t replace experience and everything is not n’est pas necessarily capitalizable by written records. However, every technical manager is responsible for identifying and documenting informations to record, especially by means of the following documents:

- Technical reports (ex: Test Reports, Stress Reports).
- Procedures and operating modes (documents identified in the QMS).
- Recommendations, technical files, guides, user manuals (documents which control and formalism are specific to every job).

Knowledge criticity is depending from the following rules:

- information (to document) known by only one person: capitalization of knowledge and training for other people;
- information (to document) known by several people: capitalization of knowledge, homogenization of practices (efficiency).

Skill tables allow the recording of all these needs.

QMS Documentation:

This consists of the quality manual (including the quality policy), the reference system which defines the main processes and associated procedures, the procedures, operating manuals and regulations (either common to DS or specific to one site), records of procedures and job descriptions defining the role and responsibilities of the DS personnel. Speaking generally, the documentation includes all the documents needed to plan, carry out and master the different processes. The records are the written evidence that the actions and processes conform to the QMS. In addition, within DS, each person is responsible for the quality of their own work and its effect on customer satisfaction. Quality plans are created whenever a need is felt.

QMS Procedures and other documents:

These are all the relevant documents used in the divisions and departments. These documents include the specific requirements or recommendations in relation to the methods used by the work units. They have been created to carry out the different tasks and processes described in the manual. For each process set out in the chart, the main procedures are mentioned in the manual.
The DS quality manager coordinates the activities of the department quality deputy managers through regular meetings. The goal of these coordination meetings is to ensure the harmonisation and coherence of the system throughout DS, in particular by harmonising the quality indicators used. These meetings also enable the quality action plans to be set up and updated. A report of the quality managers’ meeting is written by ADQ and sent to all DS divisional and departmental heads as well as to ADQ.

The quality managers suggest ways of improving the system by inputting the directors reviews at the highest level in DS. QMS reviews extend to every relevant level, division, centre and department. In each part of DS, the Deputy Quality stands himself on specific Quality assistants appointed inside each work unit when required.
Infrastructure:

Related procedures: DICO

DS decides on, sets up and maintains installations necessary to provide its services. These infrastructures are managed by the appropriate and competent ONERA department and consist of:
- the buildings, workshops and associated facilities,
- equipment needed for the processes, both hardware and software,
- support services such as despatch, packaging, and transport.

Health, Safety and Environment:

Related procedures: DSSE

Principles

The President of ONERA defined the objectives, organization, resources, and delegations of responsibility for compliance with regulations. This is formalized in a Health - Safety - Environment Management Manual, approved by DS (signatory as checker). At each centre, a single document risk assessment for occupational safety and ICPE file (classified installations for environmental protection) have been prepared and are regularly updated. The directors of centre are the first delegates; delegation of authority chain is then passed through departmental directors and heads of unit or facility managers.

In practice, safety is everyone’s concern, from the workforce responsible for applying the safety regulations in their work to the manager with safety responsibilities. As a result, DS has a policy of continually increasing safety awareness and organising specific safety training. This policy goes beyond simple compliance with the law.

In addition to the protection of the installations and equipment, customers benefit from these measures since events which could disturb the tests are minimised.

Aeras of risks specific to test centres

Test design and performance needs to respect the existing legislation, particularly in the following areas:
- pressurised devices: air pressure supply, storage, networks, models
- inflammbale products: packing, handling, storage
- chemical products (particularly those used for the tests)
- laser instruments (for control or for testing)
- environment (gases, chemical products, noise, …).

Risk management is based on setting up safety studies concerning the personnel and the installations: identification and assessment of the risks, preventive and protective measures (intervention procedures, in case of accident or incident, signposting and surveillance of limited access zones…).

Special procedures, to do with work safety, enable safety lapses to be dealt with and corrective or preventive actions to be set up. Occupational doctors, work inspectors, the health and safety committee, and the relevant manager are consulted and involved in creating these procedures.

Health, Safety and Environment items are integrated in the Quality Management System by means of the process P14. There is a broad consensus between the site manager and heads of departments DS. In addition, the DS Quality Manager also oversees quality for the entire management DS safety / environment related with management Safety Security and Environment (DSSE) and local security services (SLSE).
Confidentiality:

Related procedures: Official regulations, DS (internal)

Scope

Defence Activities: access and data protection is governed by official rules and placed under the authority of ONERA’s central security officer (DSSE). Responsibility for specific tasks is given to unit directors and to local security officers. The security rules are themselves protected.

Industrial Security: this involves the interests of both ONERA and its clients. Industrial security is taken into account via instructions from central management as well as through specific rules in the different divisions (legal responsibility, credibility).

In practice many measures deal with defence and industrial security, thus enabling complete control of confidentiality. Required levels of clearance are detailed in the customers’ contracts including particular requirements demanded by ONERA or the client. Furthermore, DRI Department carries out the computing security in order to protect information, networks and systems.

General measures

General protection measures cover:

- the individual commitment of all the personnel, official authorisations, creating and maintaining awareness of this issue
- the permanent or temporary control of access to the sites and to information
- the human and physical resources
- the data processing networks and systems.

The organization, means and procedures used to ensure confidentiality are regularly audited by the relevant defence department or by internal auditors.

Set up of contracts

Points which are examined when drawing up contracts:

- scope and required confidentiality: title, objectives, programme, models, results (including photos and model visualisations), reports, authorisations,
- access details: definition of the rules, issue of access authorisations (security service),
- identification of authorised personnel and places, surveillance,
- protection of the clients’ equipment on site and during transport,
- data protection: creation of documents (restrictions, circulation, filing and archiving),
- use of external communication systems, clients’ specific requirements, equipment supplied or set up by clients, special softwares. Every time ONERA publishes a document referring to work done for a client, prior permission is sought (annual report…).

Treatment of non-conformities

All confidentiality nonconformities are of a « process » type and are dealt with internally in accordance with quality management system procedures.
Communication au niveau management:

Internal communication is organised in relation to DS management policy and objectives so as to facilitate the quality processes.

<table>
<thead>
<tr>
<th>Type of communication</th>
<th>Person responsible and participants</th>
<th>Inputs</th>
<th>Content</th>
<th>Outputs</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>ONERA Executive Committee (COMEX)</td>
<td>Resp. : ONERA President Part. : ONERA top management including DS Director</td>
<td>ONERA strategy, investment, management rules, reports on ONERA's present state and development</td>
<td>ONERA representation on international bodies, Finance, Responsibilities and management</td>
<td>Meeting report, Policy and objectives, Instructions for management</td>
<td>Once a week</td>
</tr>
<tr>
<td>DS directors committee</td>
<td>Resp. : DS management Part. : Heads of divisions and departments</td>
<td>Instructions from ONERA general management Operating and equipment budgets Number of employees</td>
<td>Definition of tasks and responsibilities, DS marketing and management policy</td>
<td>Meeting report, Action points for the heads of divisions and departments</td>
<td>Twice a year</td>
</tr>
<tr>
<td>Divisional and departmental meetings</td>
<td>Resp. : Head of division or department Part. : Heads of units</td>
<td>Reports of executive committee meetings, Project and contract management, Budget and deadline controls.</td>
<td>Process and budget control</td>
<td>Meeting report, Action plans</td>
<td>At the initiative of heads of division, department or group</td>
</tr>
<tr>
<td>Meeting with Constructors</td>
<td>Resp. : DS management Part. : main clients, directors, heads of experimental units</td>
<td>DS annual report, Technical development, Investment</td>
<td>Presentation of main technical development actions Listening to clients' needs</td>
<td>Meeting report, Dealing with clients' demands</td>
<td>Every two years</td>
</tr>
<tr>
<td>Technical development meetings</td>
<td>Resp. : DS management Part. : Heads of divisions, relevant members of DT</td>
<td>Clients' needs Technological developments</td>
<td>Improvement and development of means and methods in the medium and long term</td>
<td>Meeting report, Action plans Equipment budget</td>
<td>Twice a year at CMA and CFM (common meetings)</td>
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## Communication during provision of a service:

<table>
<thead>
<tr>
<th>Type of communication</th>
<th>Person responsible and Participants</th>
<th>Input</th>
<th>Content</th>
<th>Output</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| Wind tunnel programming meetings | **Resp.** : Head of wind tunnel department  
Part. : Heads of unit, and DRIM, if concerned | Drawing up and review of offer, Review of contract and amendments  
Clients’ intentions in the medium term | Management of test programmes (facility business control) | Update of test programmes | Once a week |
| Project meetings | **Resp.** : Mission leader, Project leader  
Part. : All relevant personnel, Clients | Planning, Client's contract and other data Specifications | Design reviews, Coordination of project participants | Meeting report  
Action plans | At start of project and whenever needed or specified |
| Proposal, contract and intermediate reviews | **Resp.** : CA, RP, RE  
Part. : Relevant managers, Client | Offer, Contract  
Test programme Design data | Review of output data from previous steps, Coordination of project participants | Review report  
Work progress, Dealing with nonconformities if needed | Whenever needed or specified |
| End of contract reviews | **Resp.** : CA, RP  
Part. : Participants in the contract | PTF, contract, Reports of previous reviews | Assessment of customer satisfaction | Final results, Corrective or preventive actions | At each step of the process |
| Test meetings and reviews | **Resp.** : Test manager  
Part. : Test team, client | Design, preparation and performance reviews | Study of previous review's results | Test process, Test results | At each step of the test process |
| Steering committee meetings (large projects) | **Resp.** : President of the committee  
Part. : Directors concerned, project manager | Project progress reports | Project review | Decisions relating to organisation, financing, technical choices | Whenever necessary |
## Quality Management System Communication:

<table>
<thead>
<tr>
<th>Type of communication</th>
<th>Person responsible and participants</th>
<th>Input</th>
<th>Content</th>
<th>Output</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADQ meetings</td>
<td>Resp.: DS quality manager&lt;br&gt;Part.: Quality managers</td>
<td>Quality performance indicator chart of the different parts of DS, DS and local management reviews</td>
<td>Analysis of SMQ to improve coherence and homogeneity, Proposals for improvements, Preparation of input to DS management reviews.</td>
<td>Reports of meetings and action plans</td>
<td>Once every 3 months</td>
</tr>
<tr>
<td>DS management reviews</td>
<td>Resp.: DS Director&lt;br&gt;Part.: DS director’s committee (and including DS quality manager)</td>
<td>Action points from previous reviews; quality performance indicators, changes which could affect the system; possible improvements</td>
<td>Analysis of quality performance chart, Review of policy and objectives, Assessment of pertinence and effectiveness of quality management system</td>
<td>Review report Policy and objectives; resource needs; directives; assessment of SMQ efficiency</td>
<td>Twice a year</td>
</tr>
<tr>
<td>Local centre or department management reviews</td>
<td>Resp.: Heads of divisions and departments&lt;br&gt;Part.: Heads of groups, RAQ et AAQs</td>
<td>Reports of DS management reviews, Results of missions, Centre or department performance indicator chart: NC, AC/AP, clients’ demands, target achievement results</td>
<td>Analysis of quality performance chart, Policy and objectives review of centre or department, Assessment of pertinence and effectiveness of centre’s or department’s quality management system</td>
<td>Review report, Action plans, Objectives and performance indicators</td>
<td>Minimum twice a year</td>
</tr>
<tr>
<td>Process reviews</td>
<td>Informing personnel and increasing awareness</td>
<td>Reports of division, centre or department reviews, Group meetings Intranet, emails Posts In-house journal Internal memos</td>
<td>Presentation of policy and objectives Presentation of results Increasing awareness of quality and changes to standards Continuous improvement process Participation</td>
<td>Information for personnel, Involvement and commitment of all concerned</td>
<td>Following on from management reviews, and whenever necessary</td>
</tr>
</tbody>
</table>
DS definitions:

The definitions for vocabulary specific to quality management are from the reference ISO 9000: 2015 Quality management systems - Fundamentals and vocabulary.

The main definitions specific to the QMS DS are:

**DS Director’s committee**
It consists of the Director, Assistant Director, Assistant directors responsible for quality and finance, CMA director, heads of division and department. It meets twice a year to review the management system.

**Mission**
All commercial and technical activities to do with the preparation and fulfilment of a contract with a customer. An affair can include a test, or a test with associated services, or several tests and associated services.

**Test**
Experimental process in wind tunnel or in a specialised laboratory.

**Mission leader (tests)**
Responsible for the whole of a mission (coordination of commercial and technical activities) from beginning to end he has the role of a project leader. He is the client’s contact on behalf of the the wind tunnel department concerned, and follows through commercial and administrative aspects to the end of the contract including invoicing and payment.

**Test manager**
In charge of activities necessary for carrying out a test, consults with the Mission leader (CA) for the duration and activities of the test. Normally delegated by the CA as technical contact person for the client within the limits of the contract agreement.

**Engineering project manager**
Person in charge of technical and marketing aspects of a design and development project for equipment intended for ONERA use or for external clients. The engineering project manager is responsible for the management of these activities within the framework of the DS quality management system.

**Internal contracting**
Contracts are set up formalising services provided by ONERA central management, divisions and departments.

**Quality management system or quality system or management system**
The DS quality management system includes the definition of the structural organisation, responsibilities, processes and procedures, needed to implement quality management in accordance with the ISO 9001 standard requirements.

**Quality assistant**
Helps the Quality Deputy Manager by relaying quality issues within the workplace, by assisting the quality manager apply quality procedures and by advising work colleagues; he is in particular in charge of quality documents and circulating information. The Quality assistant also follows the processes set up in his group.

**Quality deputy manager**
Person delegated by management to set up, maintain, and modify the DS quality management system within their structure (also named “quality manager”).

**DS main quality deputy manager**
Nominated by DS senior management, he coordinates the activities of the departmental or centre quality managers. Reporting directly to the DS director, his task is to pilot the implementation, maintenance, monitoring and improvement of the quality management system.
Acronyms:

AnQ : Quality assistant
ADQ : Quality Manager
CA : Mission leader (tests)
CFM : Fauga-Mauzac test centre
CMA : Modane-Avrieux test centre
DA : ONERA Purchasing division
DCMA : Modane-Avrieux centre services
DCMP : Fauga-Mauzac centre services
DICO : ONERA Infrastructure division
DSSQ : ONERA Security, Safety and Quality division
DSI : ONERA Network and Computing division
DRIM : DS Engineering and Model department
DSFM : DS Fauga-Mauzac wind tunnel department
DSMA : DS Modane-Avrieux wind tunnel department
PDCA : Plan, Do, Check, Act (Deming)
QMS : Quality management system
RE : Test Manager
RI : Facility Manager
RP (CP) : Project Manager
DSSE : ONERA Security, Safety and Environment division
SLSE : Local Safety and Environment service

Key:

- **Beginning or end of process**: Green circle
- **Activity**: Blue rectangle
- **Decision**: Red diamond
- **Process x enters into the process in progress**: Yellow arrow
- **Process x leaves the process in progress**: Yellow arrow
- **Process x both enters and leaves the process in progress**: Yellow arrow
- **Input data**: Light blue rectangle
- **Output data**: Light blue rectangle
PROCESS DIRECTORY

Annex 1: R1 – Get a client contract

Annex 2: R2 – Manage a project

Annex 3: R2.1 – Design and perform a test

Annex 4: R2.2 – Design and manufacture a mechanical product

Annex 5: R2.3 – Develop new techniques for future

Annex 6: R3.1 – Setting up and maintaining facilities

Annex 7: R3.2 – Mastering measuring equipment

Annex 8: R3.3 – Mastering computer systems

Annex 9: S1 – Managing skills (HR)

Annex 11: S2 – Purchasing

Annex 11: M1 – Define and oriente strategy

Annex 10: M2.1 – Financing

Annex 12: M3.1 – Piloting continuous improvement

Annex 13: M3.2 – Piloting quality management system

Annex 14: M3.3 – Carry out Health, Safety and Environment actions
R1. Get a client contract

1 Heads of divisions and departments
   • Coordinate the initial contacts with the clients in collaboration with the « test marketing unit »

2 Heads of divisions and departments
   • Name the heads of mission (tests) and the project manager (design and development) when client’s intentions become clear

3 Head of mission or project manager
   • Carries out an initial study of client’s needs with the support, if needed, of people from within or outside ONERA

4 Head of mission or project manager
   • Examines the feasibility of the project

5 Head of mission or project manager
   • Consults with client to examine possible changes to requirements

6 Head of mission or test manager or project manager
   • Analyses the client’s demand
   • Carries out the initial design
   • Identifies the tasks and skills required
   • Identifies eventual contractors
   • Identifies the type of supplies
   • Estimates the time limits
   • Draws up the full technical plan of the project
   • Identifies the financial and technical risks and limits, as well as all the safety aspects

7 Head of mission or project manager
   • Prepares the ‘PTF’ (technical and financial proposal):
     - technical part: identification, description, planning, quality requirements, safety and confidentiality, ...
     - financial part: supplies, personnel, energy, wind tunnel scheduling, insurance...
   • Instigates the proposal review
   • In special cases establishes a provisional payment plan

8, 9 Head of division or department
   • Finalises the proposal review
   • Checks the PTF (*)
   • Submits the PTF to the client (*)
   (*) Director DS according to delegation level

10, 11 Client
   • Accepts or rejects the proposal
   • If refused, the mission or project head looks at what modifications are possible

12 Head of mission or project manager
   • Makes a record of the conclusions of the contract review
   • Informs interested parties

Related procedure: Proposal and contract reviews
R2. Manage a project

1 Head of division or department
   • Names a head of mission or project (if different from the person who prepared the PTF) as soon as client’s contract is received, or client’s agreement if official contract being prepared

2 Head of mission or project manager
   • Analyses the contract documents (requirements)
   • Makes the initial review
   • Identifies input data (technical specification, …)

3 Head of mission or project manager
   • Prepares the task organization
   • Schedules the main tasks
   • Identifies the main risks

4 Client
   • Approves the proposed schedule

5 Test or Project manager
   • Sets up a team for the test or project
   • Identifies the applicable standards, regulations and technical documents
   • Communicates the initial data to the team

6 Test or Project manager
   • Ensures the efficient running of the activity in question
   • Sets off the purchasing and sub-contracting
   • Takes into account the equipment provided by the client
   • For the test manager:
     - test preparation and performance
     - control of test results
   • Covers the financial elements of the activities
   • Checks deliverables

7 Head of mission or project manager
   • Rounds off the activities and carries out concluding review
   • Provides performance indicators to input improvements to process

Finance Manager
   • Creates the analysis form of the differences (financial and deadlines)

Related Procedures: Mission performance (tests)
                 Design and development performance
                 Financial management
R2.1 Design and perform a test

1 Experimentation Unit Head
   • Nominates the Test manager

2 Test manager
   • Analyses client’s needs and requirements
   • Plans the means (set-up, measuring equipment, data acquisition software and treatment) methods, tasks, operators and integration within the wind tunnel test programme

3 Test manager
   • Checks that test design corresponds to client’s requirements by consulting client, head of mission and the managers concerned
   • Completes any information needed

4 Facility manager
   • Gives approval to the set-up design

5 Test manager
   • Writes the test preparation document (NPE)
   • Writes the checking plan to be carried out during test preparation and performance

Facility manager
   • Gives approval to the safety aspects and writes, if need be, risk prevention documents

6 Test manager
   • Coordinates test set-up and informs client of test preparation progress
   • Coordinates pre-test checks
   • Gives approval to test start-up

7 Test manager
   • Coordinates test performance in accordance with the test programme and records the data
   • Records incidents, deals with breakdowns
   • Test manager
   • Coordinates analysis of test results during the test and prepares data output
   • Coordinates changes to the test programme in agreement with the client and the head of mission concerning the contract
   • Coordinates the post-test checks in accordance with
   • Carries out a test performance appraisal with the client and personnel concerned; on the spot client satisfaction is assessed
   • Ensures test dismantling
   • Ensures protection of client’s equipment

8 Test Manager
   • Writes out the test report
   • Provides the necessary information for the financial balance sheet

9 Experimentation Unit Head
   • Writes out the recap form to launch the improvements actions.

Related procedures:
Mastery of test design
Test design review
Writing of NPE
Test performance organisation
Test preparation and test preparation review
Protection of client’s equipment
Test performance
End of test
Writing of test report
R2.2 Design and manufacture a mechanical product

1. **Line manager**
   - Following on from client’s request, starts off the process by nominating a project leader (engineering or BE)

2. **Project manager**
   - Oversees the feasibility study using internal or external specialists

3. **Project manager**
   - Undertakes one, or several, design reviews, enabling a technical solution, with the client’s agreement, to be validated

4. **Project and sub-project manager**
   - Carry out the project and do the studies (overall plans, detailed plans, calculations etc.)
   - Undertake the necessary design review(s) with those concerned: technical and production managers, contractors… Clients are invited whenever necessary.

5. **Project and sub-project manager**
   - Set up the supplies needed (in advance of each step whenever possible)
   - Set off production (internal and contracted out)
   - Oversee the processes and associated checks

6. **Project and sub-project manager**
   - Oversee assembly and integration
   - Make sure final checks are carried out

7. **Project and sub-project manager**
   - Once the products have passed the checks, ensure they are packaged, despatched and delivered to the customer

8, 9. **Project manager**
   - Undertakes the service provision review (technical and financial results of the project)
   - Orders archiving of the files
   - Records the extent of customer satisfaction

Related procedures: Performing an engineering project
Mastering BE design
Mastering engineering works
R2.3 Carry out new techniques for future

1 Top management, heads of divisions and groups
   - Sets off the technical development process in relation to needs, possible improvements to means and methods, and available resources
   - Survey technical development needs by:
     - listening to client’s needs
     - watching competitor’s developments
     - keeping up to date with scientific and technical developments

2 Top management
   - Allocates human and financial resources for technical development actions in relation to financial possibilities

Heads of divisions and groups
   - Plan actions, nominate managers, and set off the DT process

3 Project managers
   - Carry out the planned actions

4 Top management
   - Carry out DT action reviews twice a year, in December and June, at CMA and CFM
   - Adjust planned actions or redefine new actions in relation to needs

5 Project managers
   - Carry on DT actions, in industrialization stage
   - Adjust planned actions or redefine new actions in relation to needs
   - Carry out all industrialization actions

6 Project managers
   - Transmit the reports to managers concerned,
     Present the results of the main actions at the constructors’ annual meeting

Top management
   - Analyse the innovation proposed
   - Approve the propositions

7 Heads of department
   - Formalize the new standards of technical business
   - Monitor the business development
   - Organize internal audits

8 Operational managers
   - Complete projects in compliance with new standards
   - Make technical and financial reporting
   - Record new experience

Related procedure: Technical development
R3.1 Setting up and maintaining facilities

1 Head of division
   • Names the people in charge of setting up and maintaining the facilities (heads of wind tunnel, mechanical and electrical maintenance)

2 Heads of facility and maintenance
   • Contribute to the test programme
   • Identify the maintenance needs of the equipment (both regular and occasional)
   • Prepare the test and maintenance programmes

3 Heads of facility and maintenance
   • Organise the implementation or maintenance of:
     - test interventions
     - management of teams and contractors
     - management of documents and internal procedures
     - identify future equipment needs
     - contribute to the accident prevention plan for outside companies

4 Internal teams or contractors
   • Carried out the planned work in accordance with the procedures, operating methods and instructions, constructors’ instructions etc.

Heads of facility and maintenance
   • Supervise the work
   • Manage the spare parts and materials

5 Heads of facility and maintenance
   • Record the results in the operational and maintenance reports
   • Update the equipment's documentation if needed

6 Heads of facility and maintenance
   • Implement improvements through:
     - targeted staff training
     - organisational changes
     - equipment budgets
     - improving the equipment’s reliability and availability

Related procedures: Setting up of facilities
Facility maintenance
R3.2 Mastering the measuring equipment

1 ECM Manager
- Identifies and analyses the needs and choice of monitoring and measuring equipment
- Proposes equipment supplies to line manager

2 ECM Manager
- If required equipment is in stock, goes to step 5

3 ECM Manager
- Prepares and places equipment order in relation to required accuracy, and assembly and connection characteristics (process 2.1)

4 ECM Manager
- Starts record files and completes the equipment's database
- Identifies the equipment by means of a serial or equipment number
- Defines the accuracy class, the time interval for calibration checks
- Defines the storage and protection conditions
- Files the documents

5 ECM Manager
- Undertakes the initial controls: technical, scheduling
- Supervises the preparation and performance stages

6 ECM Manager
- Carries out the necessary technical comparisons

7 ECM Manager
- Ensures the equipment is checked

8 ECM Manager
- Calibrates the equipment or has it calibrated by connecting it to the reference standards

9 ECM Manager
- Compares the results with the specifications

10, 11, 12, 13 ECM Manager
- Records the results and updates the documents (database)
- Identifies the materials that don’t conform
- Orders removal of unusable equipment

14, 15 ECM Manager
- Formalises the certificates (checking or calibration)

16 ECM Manager
- Puts the operational equipment back into service

Related procedure: mastery of measuring equipment
R3.3 Mastering the computer systems

1 Head of division
- Defines the requirements of the system to be installed (including intranet) with respect to:
  - data and information to be supplied to the client
  - data and information to be stored
  - availability and access
  - data protection (confidentiality)

2 Head of division
- Names the people responsible for defining, implementing and managing the systems

3 IT managers
- Define the systems according to hardware and software requirements
- Set up and ensure system security
- Ensure the necessary backups are carried out
- Ensure system and network maintenance is done

4 IT managers
- Oversee and assess system performance in terms of:
  - availability and access
  - efficiency of data availability
  - stability
  - security
  - confidentiality

5 IT managers
- Ensure data backup and storage
- Control access by personnel concerned

6 IT managers
- Assess system performance and report to management
- Suggest improvements and changes

Related procedures: DSMA and DSFM technical procedures
1-2 Management
Examine the fit between needs and available skills. If needs are not filled, decide the most adapted solution (training, subcontracting or recruitment).

3 Management + Purchase
Write the specifications and prepare subcontracts (process Purchasing).

4 Management
Define priorities of training (training policy).

Training Manager
Prepares the training plan (yearly) and training plan is approved by the top management. Coordinate the training actions and writes the annual report.

Personnel + Training Manager
Evaluate the training actions and give it to management.

5 Management
Propose a strategy of recruitment (internal / external) based on a medium / long term plan.

Director DS
Decide of a recruitment strategy with approval of ONERA board.

6. Management
Prepare the job descriptions with requirements for candidates. Participate to the selection and recruitment process controled by RH services. Evaluate needs in additional training for the new employees.

7 Managers + Personnel
Perform the yearly evaluation of employees in compliance with RH recommendations. Evaluate interest and efficiency of training actions and skills acquired. Identify future needs of skill evolution.

Related procedures: RH management, Management of skills.
S2. Purchasing

1 Purchasing division or department
   - Establishes the general requirements of purchases and suppliers
   - Names the buyers
   
Requester
   - Specifies needs (internal demand)

2 Buyer
   - Researches potential suppliers
   - Consults suppliers
   - Compares offers with the requester

3 Buyer
   - Selects an proposes a supplier in consultation with the requester
   - If the supplier is not registered, sets off the registration process

4 Head of management system
   - Updates the database of registered suppliers

5 Buyer
   - Establishes an order or a market in accordance with the rules in force at ONERA

6, 7 Purchasing agent
   - Checks the quantities and general condition
   - Sets off acceptance of the goods
   - Points out potential legal complaints
   - Establishes the delivery note
   - Transmits information to the buyer

8, 9 Requester or controller (on demand)
   - Checks the materials or the service
   - Sets off the goods acceptance process
   - Points out any anomalies
   - Signs the delivery note
   - Transmits information to the buyer and the QM for supplier assessment

10, 11 Buyer
   - Records conformity of goods and services
   - Checks if deadlines are respected
   - Sets off the payment process after receiving supplier’s invoice
   - Transmits the necessary elements for updating the supplier database to the quality manager
   
Quality manager
   - Updates the supplier database in relation to the assessment done

12 Buyer
   - Completes the purchasing file
   - Archives the file

Related procedures:
- Purchasing
- Mastery of contracted out services
- Delivery checks
- Assessment of suppliers
1 DS Director
- Defines main issues face to stakeholders requirements and strategy (at short, middle and long term) for answer, taking into account identified risks and opportunities.
- Defines DS policy of technical development and preparation of future.

2 DS Director with Central ADQ assistance
- Defines the DS quality policy.
- Defines the annual objectives.

3 DS Executive Committee
Execute review of management system in order to ensure that it is always appropriated, adapted and effective, in accordance with strategic orientations.

Central ADQ
- Writes review report, approved by DS Director, and distributes it.

4 DS Executive Committee
- Examine results of the system performances: reach of objectives, client and other stakeholders satisfaction, risks/opportunities.
- Reoriente strategy, if necessary.

Heads of Department
- Set up improvement plans and provide all necessary resources.

5 Heads of Department and Group Leaders
- Decline objectives at their own level.
- Examine results of the system performances in their entity: reach of objectives, client and other stakeholders satisfaction, risks/opportunities.
- Decide improvement actions taking into account action plans defined at DS Direction level.

Quality Assistants
- Write review report, approved by their managers, and distribute it.

6 Heads of Department and Group Leaders
- Enforce action plans defined in reviews.

7 Management + ADQs
- Oversee and monitor the implementation of improvement plans.
- Update risks/opportunities analyzes.
- Update the stakeholder requirement table.
M2.1 Financing

1 Operational managers
   • Establish estimates for their activities (contracts, maintenance, technical development, investment)

2 Heads of departments and groups
   • Draw up a cost assessment of their needs based on previous years’ results and recent developments

3 Heads of divisions
   • Take the final decision on their departments’ demands in relation to needs and objectives
   • Define priorities at their level

4 DS director
   • Takes the final decision on the divisions’ demands in relation to the needs, objectives, and guidelines fixed by ONERA
   • Defines priorities at his level

5 ONERA general management
   • Assigns operating and equipment budgets to the divisions, which retransmit them to departments and groups

Financial control assistants
   • Set up and manage financial control checks

6 Operating managers
   • Use the credits (purchasing demands and contracted-out services)

7 DS director
   • In the case of an unforeseen or undesirable problem (inaccurate estimate, credit freeze…) redirects the priorities and budgets in agreement with the General Management

8 Financial control assistants
   • Carry out an appraisal of the operating and equipment expenditure and transmit the indicators to the quality system management review

Related procedure: Financial management of services
M3.1 Piloting continuous improvement

1 DS Director
   • Organises the management system or management board review (called Management Board) (twice yearly reviews)

DS Quality manager
   • Prepares the formal review of the management system based on information provided by the site quality assistants

2 DS Director
   • Carries out, in conjunction with the Management Board, the management system review, consisting of:
     - examination of the actions made during the previous review;
     - looking at corrective and preventive actions (including the results of the internal audits)
     - the synthesis of the processes (with the help of the follow-up indicators)
     - examination of possible changes to system
     - policy review and quality objectives
     - the definition of the improvement actions
     - assessment of the system efficiency

DS Quality manager
   • Writes the review report, approved by the DS Director

3 Management Board
   • Examines the results of the management system review
   • Modifies, if needed, the objectives and associated indicators
   • Determines the necessary changes in documentation

Head of division or department
   • Makes the necessary resources available to carry out action plans

DS Quality manager
   • Circulates the review report
   • Monitors the implementation of the action plans

4 Head of division or department
   • Studies the relevant results of the management system: audits, nonconformities, customer satisfaction, corrective and preventive actions, performance indicators
   • Decide on improvements also taking into account actions decided at the DS top managerial level

Quality manager
   • Writes and circulates the review report when approved by the relevant manager

5 Head of division or department
   • Implements the action plans defined in the review

6 Head of division or department
   • Reports action plan progress to the Director

DS Director
   • Oversees the implementation of the action plans

Related procedure: GMT management review
M3.2 Piloting the quality management system

1. **Definition of principles**
   - **Policy**
   - **Identification sheets**

2. **Description of process control**
   - **Procedures**
   - **Quality manual**

3. **Preparation manual and procedures**
   - **PT, MO, IN**

4. **Preparation of PT, MO, IN**
   - **PT, MO, IN**

5. **Circulation and implementation**
   - **PT, MO, IN**

6. **Process review and improvement**
   - **Process M3.1**

7. **Mastering changes**
   - **All Processes**

**1. DS Director + Quality Manager**
- Defines the quality policy and management principles
- Determines the structure of the management system based on ISO 9001 requirements (flow chart of processes)

**2. Quality managers**
- Prepare the process and procedure identification sheets with the managers concerned in accordance with management instructions
- Prepare the quality manual

**3. DS Director**
- Approves the quality manual and the principles of process control
- Approve the general DS procedures

**4. Managers concerned**
- Supervise the writing of the technical procedures, operating manuals and instructions of the organisation within their charge, with the help of quality managers and assistants
- Approve the documents within the scope of their responsibilities

**Quality managers and assistants**
- Help line managers
- Ensure the coherence of the documentation
- Check the interfaces between divisions and groups

**5. DS Quality manager**
- Circulates and manages the quality manual
- Encourages the comments of the other quality assistants for the quality review

**Quality managers**
- Make the technical procedures, instruction manuals, and instructions available
- Inform the personnel about changes to the SMQ

**5. Personnel**
- Put the QMS documents in force into practice

**6. Personnel and operational managers**
- Suggest improvements to the processes and associated documentation

**Quality managers**
- Consult each other regularly about improvements to the SMQ documents. They take into account SMQ instructions, audit reports, corrective actions, clients’ demands, etc.

**Quality managers**
- Prepare the quality management system reviews of the organisation under their responsibility
- Initiate process reviews

**7. Quality managers**
- Coordinate, in conjunction with line managers, changes to the management system including updates
- Master the quality records

**Related procedures:**
- Mastery of processes
- Mastery of SMQ documentation
- Mastery of quality records
1 Management
- Valid annual HSE planning, approved by each director, head of department or unit for the entity.

2 Director DS + Quality Manager
- Integrates HSE aspects in the quality policy DS.
- Set annual HSE goals.

3 DS Management Committee
Perform the review of the management system which includes:
- Review of Q and HSE actions decided during the previous review;
- A point on corrective and preventive actions (including the results of Q and HSE audits);
- Synthesis process (using monitoring indicators);
- The definition of improvement actions;

Quality Manager
Writes the review report, approved by DS Director.

4 HSE Delegates + SLSE
- Realize a periodic review of occupational risks (single document risk assessment)
- Update of preventive action plans

Director of department or Head of group
- Puts available the necessary resources for the implementation of action plans

SLSE
- Assists delegates to the implementation of action plans.

5 Director of department or Head of group + SLSE
- Examines the actions of the HSE results in its entity audits, non-conformance, corrective and preventive actions, process indicators
- Decides improvement actions also taking into account the actions defined at the DS management review

QM + SLSE
- Write the review report and distributes it once approved by the Director or Head of group

6 HSE Delegates + SLSE
- Implement HSE improvement actions

7 Management + SLSE + QMs
- Oversee the implementation of action plans
- Monitor the progress of action plans
- Organize internal audits

Related procedure: ONERA procedures and regulations