Ministry of Defence
Defence Standard 00-56
Interim Issue 1 Publication Date 23rd March 2012

Defence Safety Management
Requirements
for Defence Systems
Part 3:
Requirements (Air Sector)

NOTE
This standard is Interim
If you have difficulty with its application please advise UK Defence Standardization
Contents

0 Introduction ............................................................................................................................... 4
1 Scope ....................................................................................................................................... 5
2 Warning .................................................................................................................................. 5
3 Related Documents .................................................................................................................. 5
4 Definitions ............................................................................................................................... 6
5 Abbreviations .......................................................................................................................... 6
6 Organization Approval Requirement ...................................................................................... 7
7 Key Safety Management Requirements and Guidance Material ........................................ 8
  7.1 Safety Management System (SMS) .................................................................................. 8
  7.2 Safety Assessment ............................................................................................................ 8
  7.3 Deliverables ....................................................................................................................... 9
    7.3.1 Safety Management Plans ......................................................................................... 10
    7.3.2 Safety Assessment Reports ....................................................................................... 11
8 Guidance Material for Service Provision Contracts .......................................................... 11
  8.1 Guidance for Services ..................................................................................................... 12
9 Acceptable Means of Compliance and Guidance Material for Key Safety Management Requirements ................................................................................................................................. 12
  9.1 Safety Management System Scope ............................................................................... 13
  9.2 Policy & Objectives ........................................................................................................ 13
    9.2.1 Management commitment and responsibility ......................................................... 13
    9.2.2 Safety accountabilities ............................................................................................. 15
    9.2.3 Coordination of emergency response planning ....................................................... 16
  9.3 Safety Risk Management ............................................................................................... 17
    9.3.1 Hazard identification ............................................................................................... 17
    9.3.2 Safety risk assessment and mitigation ...................................................................... 18
    9.3.3 Issue Escalation and Resolution .............................................................................. 19
  9.4 SMS Assurance .............................................................................................................. 19
    9.4.1 Monitoring effectiveness .......................................................................................... 19
    9.4.2 The Management of Organization Change .............................................................. 21
    9.4.3 Continuous Improvement of the SMS .................................................................... 21
  9.5 Promotion of Safety Culture ......................................................................................... 22
    9.5.1 Safety Culture ........................................................................................................ 22
    9.5.2 Training and Education ......................................................................................... 22
    9.5.3 Safety Communication ............................................................................................ 23
  9.6 SMS Documentation .................................................................................................... 23
INTERIM DEFENCE STANDARD - INVITATION TO COMMENT

Defence Standard Number: 00-56 Part 3 Issue 1 INTERIM

Title: Safety Management Requirements for Defence Systems Part 3: Requirements (Air Sector)

The above Defence Standard has been published as an INTERIM Standard and is provisional because it has not been agreed by all authorities concerned with its use. It shall be applied to obtain information and experience on its application which will then allow users to submit observations and comments.

The purpose of this form is to solicit any beneficial and constructive comment that will assist the author and/or working group to review the Interim Standard prior to its being converted to a normal Standard.

Please enter below your comments and any additional pertinent data which may also be of use in improving the Standard should be attached to this form and returned to writer at the above address.

No acknowledgement to comments received will normally be issued.

NAME: C Sim    SIGNATURE: Calum Sim    BRANCH: DSTAN SPM 2

1. Does any part of the Standard create problems or require interpretation:

YES    NO    If “yes” state under section 3:
   a. the clause number(s) and wording;
   b. the recommendation for correcting the deficiencies.

2. Is the Defence Standard restrictive:

YES    NO    If “yes” state in what way under section 3.

Defence Equipment & Support
3. Comments, general or any requirement considered too restrictive:

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<thead>
<tr>
<th>Page</th>
<th>Clause</th>
<th>Comments</th>
<th>Proposed Solution</th>
</tr>
</thead>
</table>

4. I/We agree that this Interim Standard, subject to my/our comments being taken into consideration, when published in final form will cover my/our requirements in full. Should you find my/our comments at variance with the majority, I/we shall be glad of the opportunity to enlarge upon them before final publication.

Signature.................................................................Representing................................................

Submitted by (print or type name and address) | Telephone/Fax number(s):
Email:
Date:
Our Ref:

Defence Equipment & Support
Foreword

AMENDMENT RECORD

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<tr>
<th>Amd No.</th>
<th>Date</th>
<th>Text Affected</th>
<th>Signature and Date</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REVISION NOTE

This new standard has been raised to address MAA requirements.

HISTORICAL RECORD

This standard supersedes the following:

a) This standard provides requirements and guidance for the management of safety within the Air Sector.

b) This Standard has been produced on behalf of the Defence Materiel Standardization Committee (DMSC) by the Safety Management Working Group (SMWG) of the Joint Airworthiness Committee (JAC) in cooperation with the Safety Standards Review Committee (SSRC).

c) This standard has been agreed by the Authorities concerned with its use and is intended to be used whenever relevant in all future designs, contracts, orders etc. and whenever practicable by amendment to those already in existence. If any difficulty arises which prevents application of the Defence Standard, DStan shall be informed so that a remedy may be sought.

d) Please address any enquiries regarding this standard, whether in relation to an invitation to tender or to a contract in which it is incorporated, to the responsible technical or supervising Authority named in the invitation to tender or contract.

e) Compliance with this Defence Standard shall not in itself relieve any person from any legal obligations imposed upon them.

f) This standard has been devised solely for the use of the MOD and its Contractors in the execution of contracts for the MOD. To the extent permitted by law, the MOD hereby excludes all liability whatsoever and howsoever arising (including, but without limitation, liability resulting from negligence) for any loss or damage however caused when the standard is used for any other purpose.
0 Introduction

0.1 This part of Defence Standard 00-56 is written to provide a standard that defines the interface between the MOD’s and Contractor’s safety management systems (SMS) in the Air Sector together with key deliverables. An SMS is not a document; rather it is a way of working that is endemic in the culture, process and procedures of the organization. The Air Sector operates in a regulated framework, which draws on the Civil Aviation regulatory framework. In addition, aircraft on the UK military register are subject to regulation by the UK Military Aviation Authority (MAA). This provides opportunities that may not exist in other sectors. The utilisation of this Air Sector part depends on holding appropriate organizational approval(s).

0.2 This part is intended to stand alone from the other parts of this standard. It fits within the framework of MAA regulation and MOD contracting that is used to ensure that the safety management activities performed under this part by the Contractor support the relevant MOD Duty Holder in their activities via the MOD Project Teams.

0.3 It is built around recognition that both the supplier and the employer of the user have legal duties and obligations relating to the safety of the equipment and its use.

0.4 In order to address these duties, each holder of these duties will employ a SMS.

0.5 In order for these duties to be effectively and efficiently addressed across the organizational boundaries, it is appropriate to define the interfaces between the SMSs in a manner that is appropriate to the nature of the contracted work, and provides clear and unambiguous definition of boundaries of responsibility, deliverables and dependencies.

0.6 Figure 1 below illustrates the relationship between the Contractor and MOD Project Team SMSs, and the role of the Safety Management Plan as a description of how those management systems will be applied and interfaced for a particular programme in recognition that other SMSs will exist.
Safety Management Requirements for Defence Systems

1 Scope

1.1 It is intended that the scope of this standard addresses responsibilities associated with each contracted phase. It should be recognised that residual duties may exist outside of the scope of contract and that provision for these lies with the relevant holder of the duty.

1.2 This standard has been written to consider application from the earliest lifecycle phase; however the requirements are applicable wherever in the lifecycle it is originally applied. It is likely that if applied later in the lifecycle, the activities performed and the nature of the outputs from these activities will be different than if applied from the outset, but in all cases these should be appropriate to demonstrate that the duties have been upheld.

1.3 This Part 3 has been created to provide an alternative to Part 1 that takes advantage of particular characteristics of the Air Sector that provide a basis for contracting for safety management. These include the use of Approved Organization Schemes managed by a regulatory body, and the wide availability of recognised good practice from the Civil Aviation sector.

1.4 As much of the content of Part 3 has been derived from the Civil Aviation sector practice, in particular the ICAO material on SMSs, the structure of Part 3 does not directly relate to that in Part 1, and there is no direct clause by clause equivalence.

2 Warning

The Ministry of Defence (MOD), like its Contractors, is subject to both United Kingdom and European legislation regarding Health and Safety at Work. Many Defence Standards set out processes and procedures that could be injurious to health if adequate precautions are not taken. Adherence to those processes and procedures in no way absolves users from complying with legal requirements relating to Health and Safety at Work.

3 Related Documents

3.1 The publications shown below are referred to in the text of this standard. Publications are grouped and listed in alpha-numeric order.

Aerospace Recommended Practice (ARP) 4761

MAA Regulatory Article RA1200

MAA Regulatory Article RA1220

MAA Regulatory Article RA1430

3.2 Reference in this Standard to any related document means in any Invitation to Tender or contract the edition and all amendments current at the date of such tender or contract unless a specific edition is indicated. For some standards the most recent editions shall always apply due to safety and regulatory requirements, an example of this being Statutory Instruments (SIs).

3.3 In consideration of clause 3.2 above, users shall be fully aware of the issue, amendment status and application of all related documents, particularly when forming part of
an Invitation to Tender or contract. Responsibility for the correct application of standards rests with users.

3.4 DSTan can advise regarding where to obtain normative referenced documents. Requests for such information can be made to the DSTan Helpdesk. Details of how to contact the helpdesk are shown on the outside rear cover of Defence Standards.

4 Definitions

For the purpose of this standard the definitions in Defence Standard 00-56 Part 1 Annex A shall apply, in addition to those listed below.

4.1 Safety Management Requirements (SMRs)

SMRs obligated under contract of this Part 3 are identified by “SMR” at the head of the text followed by a numerical reference related to section and sequence.

4.2 Acceptable Means of Compliance (AMC)

Identified by “AMC” at the head of the text followed by a numerical reference related to section and sequence. AMC represents the means by which the intent of the requirement is to be met but are written in the permissive sense in order to allow an organization the opportunity to consider alternative approaches; any alternative approach must be approved by the MAA.

4.3 Guidance Material (GM)

Identified by “GM” at the head of the text followed by a numerical reference related to section and sequence. GM is not mandatory and is used to provide additional information for consideration when addressing the requirement or AMC.

4.4 Product

Throughout this part the term ‘product’ is used to represent the scope of supply of the Contractor to MOD and may include a wide range including complete platforms, systems, sub-systems, equipment, components, and/or services including design, manufacture, maintenance, operation, and disposal.

5 Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMC</td>
<td>Acceptable Means of Compliance</td>
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<tr>
<td>APCMP</td>
<td>Accident/Aircraft Post Crash Management Plan</td>
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<td>CMC</td>
<td>Crisis Management Centre</td>
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<td>DAOS</td>
<td>Design Approved Organization Scheme</td>
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<td>ERP</td>
<td>Emergency Response Plan</td>
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<td>GM</td>
<td>Guidance Material</td>
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<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<td>MAA</td>
<td>Military Aviation Authority</td>
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6 Organization Approval Requirement

One of the Four Pillars of Airworthiness is the use of competent organizations. An approved organization scheme is a mechanism by which competence of organizations can be assured. An obligatory element of obtaining organization approval in the defence aviation environment is the establishment and maintenance of an acceptable Safety Management System. It is reminded that current MOD policy is to only procure from Contractors who have been assessed as competent.

SMR6.1

The Contractor shall maintain a recognised organization approval from contract award or as specified in the contract, that -

a) is issued by an appropriate regulatory body;

b) covers an identified scope that includes the product; and

c) includes recognition that the processes and procedures employed, including the Contractor’s SMS, are appropriate to the Contractor’s scope of activity.

The organization shall facilitate reasonable access to allow audit of the SMS both in support of the organization approval and its application on specific contracts.

AMC6.1

When an organization tendering for work under this Standard does not hold a recognised organization approval, or holds an approval with insufficient scope, it shall be acceptable to propose a contractual milestone by which sufficient approval must be obtained.
GM6.1

a) Approval schemes such as the MAA’s Design Approved Organization Scheme (DAOS), Maintenance Approved Organization Scheme (MAOS) may be considered acceptable. Organizational approval is only granted after assessment of the company’s processes, procedures and the competencies of named individuals in key approval roles. DAOS and MAOS approval are subject to on-going surveillance of the organization’s continued competence achieved through audit by the MAA or their authorised agent.

b) Following organization approval award, any proposed or unplanned change in SMS that may adversely impact or invalidate the approval scope must be notified to the approval Authority for their consideration.

c) In addition to MAA audit, the MOD Project Team or their agent may conduct audits on the Contractor within the scope of the contract in order to satisfy the objectives of their SMS.

7 Key Safety Management Requirements and Guidance Material

7.1 Safety Management System (SMS)

SMR7.1

An organization operating within the scope of this Part shall implement and maintain an explicit SMS that is effective and appropriate to control the risk for the scope and nature of work conducted. A SMS is not project/programme specific; rather it reflects the organization’s inherent approach to management of safety.

GM7.1

AMC and further GM for the SMS requirement of this standard is provided in Section 9. Section 9 addresses the SMS that will reflect the organization’s approach to safety outside of any individual contract.

Compliance of the organization’s SMS to Section 9 will be assessed as part of an organization approval audit. The assessment will be appropriate to the scope of approval of the Contractor at the discretion of the Regulator.

When contracted to this standard it is recognised that many organizations may not have all the elements of a SMS prescribed by the standard; in these cases an implementation plan is needed that shows how and when the organization will comply with these requirements.

7.2 Safety Assessment

SMR7.2

a) The Contractor shall perform an assessment of the safety of the product based on the contracted scope of supply. The Contractor shall assess the product against the contracted safety requirements, and any safety issues determined by the safety risk management process.
b) The Contractor shall ensure the availability of sufficient information from the safety assessment to enable the relevant stakeholder to manage safety issues in-Service that arise from or are impacted by the product.

c) For a pre-existing product that is to be changed, and for which there is no existing Safety Assessment, the Contractor shall perform a Safety Assessment that addresses the safety aspects of the product within bounds agreed with the MOD.

**GM7.2 (Applicable to SMR7.2 a), b), and c) as required)**

a) The depth and rigour of the Safety Assessment will be commensurate with the potential risk posed by the product, the complexity of the product and the unfamiliarity of the circumstances involved. Records, safety analysis and certification type data required to satisfy regulatory and contract requirements can be evidence to support the Safety Assessment. The Safety Assessment will consider:

1) a definition of the configuration and operating environment to which it applies;
2) a description of the safety requirements, safety objectives and attributes;
3) a statement of any constraints on the product imposed by the contract;
4) a description of the product and its intended use;
5) a structured argument justifying the safety of the product;
6) the evidence that supports the safety argument;
7) the identification of limitations and procedures necessary to achieve the required level of safety for the subject configuration and operating environment;
8) The identification of assumptions, context and dependencies used in the justification of safety that are beyond the scope of responsibility of the Contractor.

b) Where appropriate, the Contractor will ensure that any related Safety Assessment already in existence are utilised and integrated as necessary.

c) The information is provided for use by the relevant MOD stakeholders to enable them to assess and manage safety risks in operation. The stakeholder may be the operator, maintainer, Duty Holder etc.

d) Further guidance on Safety Assessment may be found in Aerospace Recommended Practice (ARP) 4761 ‘Guidelines and Methods for Conducting Safety Assessment Process on Civil Airborne Systems and Equipment’.

**7.3 Deliverables**

**SMR7.3**

Unless otherwise specified in the contract, the Contractor shall supply a Safety Management Plan (SMP) and Safety Assessment Report(s). In addition to these and any other deliverable information specified in the contract, the Contractor shall be required to provide reasonable access to non-deliverable supporting documentation.

**AMC7.3**

a) The Contractor should agree a SMP with MOD at contract award that includes plans and criteria for review, update and approval of the SMP throughout the life of the contract.
b) As a minimum, the Contractor should supply a SAR prior to delivery of the product.

**GM7.3**

a) It is likely that a number of deliverables may be required by contract to give MOD the required information to manage their duties and provide confidence that the Contractor has adequately addressed their duties; however the breadth of the scope of supply covered by this standard is such that it is not reasonable to prescribe what those deliverables will be and will therefore be clearly articulated by the MOD on a case by case basis.

b) Any deliverables requested will be relevant to the scope of supply and for a defined purpose. The use of the deliverable needs to be understood by all parties to ensure it is appropriate for that use.

c) Deliverable documentation may reference key supporting information rather than including it within the document to aid readability, avoid repetition, aid security management etc. Whilst this is good practice, access to this information may be required by MOD to enable assessment of the deliverable. It is often unnecessary or inappropriate to deliver all of this supporting information, and reasonable access arrangements for the MOD and their agents must be agreed.

**7.3.1 Safety Management Plans**

**SMR7.3.1**

a) The SMP shall describe the application of the Contractor’s SMS to the contracted scope of work and the interfaces to the SMS of other organizations relevant to that contract.

b) The plan shall include the identification of key safety related activities and their relationship to other programme activities.

**GM7.3.1**

The requirement for safety management plans is not to be taken to imply a single document. The planning information will be structured to be clear, concise and comprehensible. Appropriate reference to other existing documents, in particular the SMS description, is preferable and acknowledges the requirement for the continuous improvement of the SMS and that regular changes are expected. It is undesirable to include a timed schedule of activities, other than by reference to the live programme plan. This avoids unnecessary pressure to update the plan when activities are re-scheduled or completed. It is essential that the interfaces are well understood and documented. The SMP may include the following:

a) The top level safety requirements of the **product**, these include:

1) those specified by the contract
2) those required by the regulator and legislation
3) those mandated by internal company policy, and
4) safety objectives and acceptance criteria
b) An overview of the SMS. In practice it is likely that the interfaces may be more complicated than that illustrated by Figure 1 in Section 3. The Contractor may have interfaces to more than one MOD PT, and will need to address interfaces to the SMS of its supply chain and any team partners. The overview may address;

1) how it is applied to the particulars of the contract (e.g. project management structures, safety-related engineering activities and deliverables, reporting mechanisms, etc)
2) the interfaces specific to this contract (e.g. with MOD’s and supplier(s)’s SMS including; deliverables, key contacts, inter-organization safety reporting and decision making forums/mechanisms, relationships with other plans, etc). The interfaces specific to this contract include the points of contact with the MOD Project team and relevant MOD Aviation Duty Holders

c) The mechanisms to be utilised for issue escalation and approval in the event that the Contractor and MOD cannot agree on a matter relating to safety.

d) The criteria for review, update and approval of the plan.

e) A list of safety related deliverables

7.3.2 Safety Assessment Reports

SMR7.3.2

The Contractor shall produce Safety Assessment Report(s) (SAR) as documented in the safety management plan and as contracted. A SAR is a deliverable that summarises the Safety Assessment at a particular instant in time. It provides assurance to the MOD that safety is being effectively managed, highlights areas of safety-related project risk requiring management attention and gives stakeholders visibility of the status of the Safety Assessment.

GM7.3.2

The content needs to be appropriate and proportionate and its scope agreed with the MOD taking into account the related safety assessment.

8 Guidance Material for Service Provision Contracts

This section of the Defence Standard provides GM on the application of this standard to service provision contracts. A service may be defined as work done by a person or a group that benefits another. If the service can lead to safety hazards, then the safety of the service must be managed. A service can be further characterised as a recurring series of actions performed in accordance with a pre-defined process, it therefore follows that the management of the safety of the service must also be a recurring process.
8.1 Guidance for Services

GM8.1

a) During the design of a service, the designer’s aim will be to create a system of safe processes, operating in safe environments, using safe facilities and competent staff. Definition of the service will address each of these elements. During operation of the service, each element of the service will be subject to the following safeguards:

1) Monitoring: monitor the service to ensure that unsafe or potentially unsafe events are captured, recorded and investigated in a timely fashion, potentially leading to modification to the service to prevent recurrence.

2) Audit:
   i) audit compliance with the documented safe processes to ensure that unsafe deviations from the approved process do not develop.
   ii) audit environments and facilities for compliance with mandated standards.
   iii) audit the competence of staff in key roles to ensure that the required levels of competence are maintained.

3) Review:
   i) review processes on a regular basis to ensure currency with recognised good practice.
   ii) review environments and facilities to ensure that they comply with relevant standards and recognised good practice.
   iii) review staff competence specifications to ensure currency with recognised good practice.

b) Ideally the design of the service will eliminate potential causes of hazards, however, as all possible causes cannot be predicted in advance, the design of the contracted service will also incorporate organizational features and processes to:

1) review operations and identify potential hazards which may arise during the provision of the service, and,
2) investigate accidents or near accidents which may occur during the provision of the service;
3) manage change to the service’s organizational features and processes to prevent recurrence of the hazards and accidents.

c) Organizational features and processes will be part of the Contractor’s SMS (refer Section 7).

9 Acceptable Means of Compliance and Guidance Material for Key Safety Management Requirements

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1 N.B. “organizational features” – examples: periodic meetings (including their terms of reference), information flows, physical barriers around danger areas, designated roles (including their assigned authorities and responsibilities), mandated inspection stages, confidential reporting systems, Error Management Systems, etc.
It is a requirement of Part 3 of this standard that an organization contracting to this part has an explicit Safety Management System (SMS) that is effective and appropriate for the scope and nature of work conducted.

This section provides AMC and related GM for the requirements for a SMS within the Air Sector. It has been kept separate from the guidance material in Section 7 as the SMS reflects the organization’s approach to safety outside of any individual contract. The AMC and GM within this section takes into account Military Aviation Authority (MAA) Regulatory Article (RA) 1200.

A SMS is not specific to an individual project/programme/contract; rather it reflects the organization’s inherent approach to management of safety.

### 9.1 Safety Management System Scope

**AMC 9.1**

a) An explicit and effective SMS should address:

1) Policy and Objectives
2) Safety Risk Management
3) SMS Assurance
4) Promotion of safety culture
5) SMS Documentation

b) The SMS should address the organization’s responsibility for ensuring the safety management of its subcontractors is effective.

### 9.2 Policy & Objectives

#### 9.2.1 Management commitment and responsibility

**AMC 9.2.1**

The organization should define and document its safety policy reflecting organizational commitments regarding safety. The policy should:

a) be approved by a representative of the board of the organization
b) include a clear statement about the provision of the necessary resources
c) be communicated, with visible endorsement, throughout the organization
d) include the commitment of the organization to the use of safety reporting systems
e) include expectations of the behaviour of staff in respect of safety matters
f) include commitment to supporting staff in identifying safety issues
g) include commitment to an appropriate organization safety culture
h) identify the interfaces to the relevant regulatory organizations that exist outside of any specific programme contract
i) be periodically reviewed to ensure it remains relevant and appropriate to the organization

**GM9.2.1**

a) The safety policy needs to include a commitment to:

1) achieve the highest reasonably practicable safety standards;  
2) observe all applicable legal requirements, standards and best practice;  
3) provide appropriate resources;  
4) safety being a primary responsibility of all Managers; and  
5) ensure that the policy is implemented and understood at all levels both internally and externally.

b) The Civil Aviation sector uses the concept of an ‘Accountable Manager’, a term also employed by MAA regulation RA 1200. The Accountable Manager role is a role that has authority to ensure adequate resources are available and applied, and is usually a senior role within the company. They need to have operational authority over the organization.

c) A safety organization within a company may be established that has particular expertise in matters of safety however it is important to note that accountability for the SMS lies with the Accountable Manager not the safety organization. The safety organization may carry out or ensure the following functions are performed:

1) manage the SMS implementation plan on behalf of the Accountable Manager;  
2) facilitate the risk management process that may include hazard identification and analysis, risk assessment (including risk estimation), hazard risk matrix, risk reduction and risk monitoring and review;  
3) monitor any corrective action required in order to ensure accomplishment;  
4) provide periodic reports on safety performance;  
5) maintain safety documentation;  
6) safety training for staff;  
7) provide independent advice on safety matters;  
8) advise Senior Managers on safety matters;  
9) oversee hazard identification systems; and  
10) support occurrence/accident investigations.

d) The safety organization within a company will vary in size, composition and structure to suit the organization, its SMS and the risk associated with the organization’s activities. The safety organization typically has the following characteristics:

1) The necessary authority to deal with safety matters  
2) A reporting line to the Accountable Manager.  
3) Management of the safety organization may be with one manager or several managers depending on the chosen organizational structure.  
4) Clearly defined individual responsibilities.  
5) Managers with a technical background sufficient to understand the safety processes that support the organization and have relevant experience of the organization’s activities.
6) Personnel may have other duties provided that there is appropriate independence where necessary

9.2.2 Safety accountabilities

AMC9.2.2

a) The organization should:

1) Define the safety accountabilities and competencies of key roles.
2) Appoint competent people to the key management roles giving due consideration to their authority and (where appropriate) independence;
3) Create appropriate forum(s) for monitoring and escalation of issues affecting safety performance

GM9.2.2

a) The Accountable Manager needs to have full responsibility for the SMS and have:

1) corporate authority for ensuring all activities can be financed and that resources are allocated to manage the safety risks of the consequences of hazards that threaten the capabilities of the organization;
2) full authority for ensuring adequate staffing levels with appropriate competence;
3) accountability for the conduct of the organization’s affairs;
4) accountability for all safety issues.

b) Senior Management need to:

1) develop the safety policy, which is endorsed by the Accountable Manager;
2) continuously promote the safety policy to all staff and demonstrate their commitment to it
3) specify and allocate necessary human and financial resources; and
4) establish safety objectives and performance standards for the SMS. The safety objectives and performance standards will be linked to the safety performance

c) As appropriate to the organization, specific accountabilities may need to be defined for other personnel (or categories of personnel). There is a general requirement on all personnel to understand their role in the SMS, follow procedures and contribute to safety improvements.

d) Safety Committees: In order to coordinate safety activity across an organization, safety committees need to be established. While the appropriate structure of such committees will differ between organizations one model, using two levels of committee is described as an example:

e) Safety Review Board (SRB): The SRB is a high level committee which considers strategic safety functions and is applicable to large organizations.

1) The board would be chaired by the Accountable Manager and would normally include the Senior Management of the organization and safety organization representation.
2) Directors of the organization may be included in the SRB.
3) The SRB ensures that appropriate resources are allocated to achieve the established safety performance beyond that required for regulatory compliance and gives strategic direction to the Safety Action Group (SAG).
4) The SRB monitors:
   i) safety performance against the safety policy and objectives;
   ii) effectiveness of the SMS;
   iii) effectiveness of the safety oversight of sub-contracted organizations;
   iv) that necessary corrective or mitigating actions are being taken in a timely manner;
   v) effectiveness of the organization’s safety management processes; and
   vi) promotion of safety culture.

f) Safety Action Group (SAG): The SAG reports to and takes strategic direction from the SRB. It comprises managers, supervisors and staff from appropriate disciplines areas. The Safety Organization will be represented at the SAG that;

   1) oversees safety;
   2) resolves identified risks to the effectiveness of the SMS;
   3) assesses the impact on safety of operational changes;
   4) implements corrective action plans;
   5) ensures that corrective action is achieved within agreed timescales;
   6) reviews the effectiveness of previous safety recommendations; and
   7) escalates relevant issues to the SRB.

9.2.3 Coordination of emergency response planning

AMC9.2.3

a) Organizations with operating aircraft responsibilities should:

1) Prepare an Emergency Response Plan (ERP)\(^2\) that provides for the orderly and efficient transition from normal to emergency operations, and the return to normal operations
2) Ensure that the ERP is properly coordinated with the ERP of those organizations it interfaces with during the provision of its services.
3) Ensure the ERP reflects the size, nature and complexity of the activities performed by the organization and recognises the activities of suppliers or sub-contractors as appropriate.

b) Organizations with design/production/maintenance responsibilities should ensure that they assess and plan for the likely support to other organizations in respect to emergencies involving their products.

\(^2\) For MOD equivalent to ERP is the Accident/Aircraft Post Crash Management Plan (Accident/APCM Plan) refer RA 1430 (3)
GM9.2.3

a) The ERP needs to ensure:

1) an orderly and efficient transition from normal to emergency operations;
2) designation of emergency authority;
3) assignment of emergency responsibilities;
4) authorisation by key personnel for actions contained in the plan;
5) coordination of efforts to resolve the emergency; and
6) safe continuation of operations or return to normal operations as soon as practicable.

b) The ERP needs to set out the responsibilities, roles and actions for the various agencies and personnel involved in dealing with emergencies.

c) An ERP will take into account RA1430 and must consider:

1) governing policies;
2) organization;
3) notifications;
4) initial response;
5) additional assistance;
6) Crisis Management Centre (CMC);
7) records;
8) accident site;
9) news media;
10) formal investigations;
11) family assistance;
12) post-critical incident stress counselling; and
13) post-occurrence review

9.3 Safety Risk Management

9.3.1 Hazard identification

AMC9.3.1

The organization should develop and maintain a formal process which ensures that safety hazards are identified. Hazard identification should be based on a combination of methods of safety data collection including; reactive, proactive and predictive.

GM9.3.1

a) A hazard identification process is the formal means of collecting, recording, analysing, acting on and generating feedback about hazards that potentially affect safety. In a mature SMS hazard identification is an ongoing process.

b) The scope of hazard identification is across the activities of the organization with data derived from reactive and proactive schemes. Reactive schemes include data from accidents, incidents and flight data monitoring. Proactive schemes include voluntary incident reporting, reporting schemes (open/confidential), safety surveys, audits and assessments. Managed group sessions can also be used to identify hazards.
c) What constitutes a hazard needs to be appropriate to tasks performed by the organization e.g. may be different for a design organization and an operator

9.3.2 Safety risk assessment and mitigation

AMC9.3.2

The organization should develop and maintain a formal process that ensures analysis, assessment, elimination, reduction and control, so far as is reasonably practicable, of the safety risks.

GM9.3.2

a) Aerospace Recommended Practice (ARP) 4761 ‘Guidelines and Methods for Conducting Safety Assessment Process on Civil Airborne Systems and Equipment’ provides guidance material for assessing risk. The overall aircraft operating environment is considered but it is emphasized that the scope is based on civil standards which may have to be extended/adapted for appropriate military stakeholder involvement.

b) When assessing risk to life associated with operating legacy platforms it is likely that the original reliability and safety assessments are no longer available. Alternative methodologies for deriving the probability of Hazards and the probability of them leading to accidents may be developed using in-Service occurrence quantitative data, and qualitative data from operators and maintainers experience within the MOD and other nations’ operators of similar types in similar roles. This process is subjective and the depth of research and use of dissimilar sources will depend on the degree of risk to life; the greater the risk the more evidence will be required.

c) Following the identification of a hazard a form of analysis is required to assess its potential for harm and risk to life or damage. This involves two considerations:

1) Probability: The likelihood of the hazard occurring and causing adverse consequences.

2) Severity: The severity of the potential adverse consequences.

d) Risk assessment and mitigation processes analyse and eliminate, or mitigate to an acceptable level, identified risks. A system needs to be developed for assessing and analysing the data collected or derived from the actions outlined above. Information provided by analysis needs to be distributed to those with a responsibility for safety in the organization.

e) Confidential reporting systems need to be based on established human factors principles including an effective feedback process.

f) Risk assessment involves taking into account the probability and severity of any adverse consequences resulting from an identified hazard. Mathematical models may give credible results, but typically these analyses are supplemented qualitatively by subjective critical and logical analysis of the inter-related facts. While the severity of the consequences can be defined, the probability of occurrence may be more subjective, based on the maturity of the organization’s operational activities. The assessment process needs to be recorded at each stage to form a substantive record.
g) Risks must be eliminated or reduced so far as is reasonably practicable. Risk must be balanced against the time, cost and difficulty of taking measures to reduce or eliminate the risk. The level of risk can be lowered by reducing the severity of the potential consequences, reducing the probability of occurrence or by reducing exposure to that risk. Corrective action will take into account any existing defences and their inability to achieve an acceptable level of risk. Corrective action needs to be subject to further risk assessment, in order to determine that the risk is now acceptable and that no further risk has been introduced.

9.3.3 Issue Escalation and Resolution

AMC9.3.3

The organization should define how disagreement between itself and other organizations will be resolved on safety matters relating to its products.

GM9.3.3

a) Given the different duties that are held by the Contractor and MOD, and the absence of any absolute definition of ‘safe’, it is possible that in the course of addressing their respective duties there will be a disagreement over whether the product has achieved the appropriate safety objectives. Disagreement may be of two general types: Those where the MOD PT is dissatisfied with the safety performance of the Contractor, and those where the Contractor is concerned over safety decisions taken by the MOD. The former case is a matter of contract performance and is outside the scope of this standard.

b) In the latter case and in the first instance these disagreements need to be aired at the project safety panel with safety representatives from both the Contractor and MOD present. Neither party may over-rule the other and force a decision that is contrary to their duty.

c) In the case that issues cannot be resolved at the safety working level, they need to be escalated to the senior management level within the programme. Again, neither party may over-rule the other and force a decision that is contrary to their duty.

d) Where every attempt to resolve the issue at programme level has been taken, and there remains a disagreement, the issue needs to be formally recorded and copied to the relevant MOD Aviation Duty Holder. The Duty Holder will review the actions proposed by the Contractor and/or PT and will propose a solution, where possible agreed by all parties.

e) If at the end of this process a Contractor is not satisfied that its safety duties are appropriately addressed they may raise a letter to the MAA, Duty Holder and PT detailing the perceived safety issue.

f) The expectation is that the MOD will respond to the Contractor detailing the rationale for the solution.

9.4 SMS Assurance

9.4.1 Monitoring effectiveness

AMC9.4.1

The organization should have a formal process to assess the performance of its SMS.
GM9.4.1

a) The organization needs to develop and maintain the means to verify the safety performance of the organization, in relation to the potential for a deficiency to affect the safety margins of the products in operation. Any measures chosen need to ensure that the likelihood of staff reporting potential safety-related issues is maximised.

b) Safety performance monitoring and measurement needs to be the process by which the safety performance of the organization is verified in comparison to its safety policies and objectives. This process needs to include:

1) audits;
2) surveys;
3) safety reporting;
4) reviews including trending of data; and
5) studies.

c) Audits are used to ensure that the SMS is effective, including consideration of:

1) adequate staff levels;
2) compliance with approved procedures and instructions; and
3) level of competency and training.

d) Surveys examine particular elements or processes of a specific operation. Survey information is subjective and therefore needs to be appropriately verified before any corrective action is initiated. Surveys may involve the use of:

1) checklists;
2) questionnaires; and
3) informal confidential interviews.

e) Feedback from in-Service use of the products of the same or similar type can be useful in identifying the effective performance of the SMS. The user base of a particular product or family of products may provide a much broader set of information than any individual user can obtain directly. Care must be taken to balance the usefulness of this information in informing the SMS performance evaluation and the confidentiality that users of the product are entitled to surrounding any usage/incident information.

f) Internal Safety Investigations: The scope of internal safety investigations need to include occurrences that are not required to be investigated or reported to the MOD. Though often of a supposed minor nature, they could be indicative of a potential hazard that would only be revealed through a systematic investigation.

g) Scope of Safety Investigations: The scale and scope of any investigation need to be suitable to determine and validate the underlying hazards. A systems approach is useful to provide a broad appreciation of the context of any occurrence. Effort expended needs to be proportional to the perceived benefit to the organization in terms of identifying hazard and risk.
h) Investigation Methodology: Investigations follow an iterative process that may require going back and repeating steps as new data is acquired or new conclusions are reached. Information sources are many but typically will include:

1) documentation;
2) operational monitoring and recording (e.g. OLM/ODR);
3) interviews;
4) simulations; and
5) safety databases.

i) Investigation Output: An organization needs to have a procedure to communicate the results of any safety investigations and any associated actions.

9.4.2 The Management of Organization Change

AMC9.4.2

The organization should have a formal process to manage changes affecting the SMS. It should:

a) identify external and internal sources of change

b) utilise the organization’s existing risk management process to ensure that there is no adverse effect on safety

GM9.4.2

Change can introduce new factors that could impact the appropriateness and effectiveness of any existing risk mitigation (e.g. organization structure change affecting communication effectiveness/expediency).

9.4.3 Continuous Improvement of the SMS

AMC9.4.3

The organization should have a process to identify opportunities for continuous improvement of the effectiveness of the SMS.

GM9.4.3

Continuous Improvement may be achieved through:

a) evaluation of facilities, equipment, documentation and procedures through safety audits and surveys;

b) evaluation of an individual’s performance to verify the fulfilment of their safety responsibilities;

c) reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk, e.g. incidents, accidents and investigations;

d) tracking organizational changes to ensure that they are effective; and

e) Feedback.
9.5 Promotion of Safety Culture

9.5.1 Safety Culture

AMC9.5.1

The organization should actively promote a culture that supports an effective SMS that is endemic in the organization’s way of working.

GM9.5.1

Extensive guidance material on safety culture relevant to the aviation sector is available from many sources, some of which are:


e) Air Safety Support International: (http://www.airsafety.aero/) a subsidiary of the UK CAA helping to provide a more cohesive system of Civil Aviation safety regulation in the UK and Overseas Territories.

9.5.2 Training and Education

AMC9.5.2

The organization should develop and maintain a safety training programme. The scope of the safety training should be appropriate to each individual’s involvement in the SMS.

GM9.5.2

All staff need to receive safety training as appropriate for their duties and safety responsibilities. In particular all Operational Staff (where appropriate), Managers, Supervisors, Senior Managers and the Accountable Manager need to be trained and be competent to perform their specific SMS duties:

a) Managers and Supervisors – need to understand the safety process, hazard identification, risk management and the management of safety related change.

b) Senior Managers – need to understand organizational safety standards, safety assurance and the safety related regulatory requirements for their organization.

c) Accountable Manager – needs to have a working knowledge of SMS roles and responsibilities, safety policy, SMS standards and safety assurance.
9.5.3 Safety Communication

AMC9.5.3

The organization should develop and maintain formal means for safety communication that ensures that personnel, as appropriate to their role, are fully aware of the SMS; conveys safety related information; and explains why particular safety actions are taken and why safety procedures are introduced or changed.

GM9.5.3

a) Safety communication is an essential foundation for the development and maintenance of an adequate safety culture. The modes of communication may include:

1) safety policies and procedures;
2) newsletters;
3) presentations;
4) safety notices; and
5) informal workplace meetings between staff and the Accountable Manager or Senior Managers.

b) Safety communication needs to:

1) ensure that all staff are fully aware of the SMS and the organization’s safety culture;
2) convey safety-critical information;
3) explain why certain actions are taken;
4) explain why safety procedures are introduced or changed;
5) encourage an open feedback system and;
6) complement and enhance the organization’s safety culture.

c) The organization needs to have a process for assessing the effectiveness of safety communication.

9.6 SMS Documentation

AMC9.6

A description of the SMS should be documented. As a minimum the documented description should include or reference:

a) The organization’s safety policy and objectives
b) The relevant organization structure
c) The key appointments together with accountabilities and responsibilities
d) The relevant processes and procedures
e) The SMS requirements, interfaces and outputs
f) The measures used to monitor the effectiveness of the SMS
a) The SMS documentation may be provided in traditional hard-copy form, or may exists as electronic documentation available to all those who may need access to it. Documentation for an SMS needs to be representative of the nature, scale and complexity of the organization and normally consist of:

1) applicable regulations;
2) SMS records;
3) records management; and
4) SMS description.

b) The organization’s SMS description may be a stand-alone document or a combination of material in multiple descriptions. It documents all aspects of the SMS, including the safety policy, objectives, procedures and individual safety accountabilities. Contents need to include (though not necessarily in this order):

1) Policy:
   i) Safety Priority.
   ii) Safety Objectives.
   iii) Scope.
   iv) SMS Documentation.
   v) Duty Holders, Commanders and Accountable Managers Commitment.
   vi) Positive Safety Culture.
   vii) Aviation Documentation

2) Organization:
   i) Responsibilities and Organization.
   ii) Aviation Duty Holder.
   iii) Separation and Independence.
   iv) Competencies.
   v) Training and Education.
   vi) Defined interfaces with adjacent ASMS.
   vii) Suppliers and Contracted Services.

3) Safety Management Activities:
   i) Assurance Programmes.
   ii) Risk Management and Risk Registers.
   iii) Management of Change.
   iv) Reporting and Investigation of Occurrences.
   v) Communication.
   vi) Emergency Arrangements.

4) Safety Performance:
   i) Safety Targets
   ii) Retention of Data.
   iii) Evaluation and feedback of Data
   iv) System (ASMS) Review.
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Defence Standards are Published by and Obtainable from:

Defence Equipment & Support
UK Defence Standardization
Kentigern House
65 Brown Street
GLASGOW G2 8EX

DStan Helpdesk
Tel 0141 224 2531/2
Fax 0141 224 2503
Internet e-mail enquiries@dstan.mod.uk

File Reference
The DStan file reference relating to work on this standard is D/DSTAN/21/56/3.

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