International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Twelfth Meeting of the GREPECAS Aeronautical Information management Subgroup
(AIM/SG/12)
Lima, Peru, 23 to 27 November 2009

Agenda Item 2: Review of the AIM Subgroup Contributory Bodies Reports
2.2 Report of the Tenth Meeting of the Aeronautical Information Management Training Task Force (AIM/TRAIN/TF/10)

GUIDANCE MANUAL FOR THE IMPLEMENTATION OF A QUALITY MANAGEMENT SYSTEM FOR THE AIS/MAP OF AIM, PART 4 – SELECTION, COMPETENCE, TRAINING AND REQUALIFICATION OF AIS/MAP PERSONNEL

(Presented by the Rapporteur of the Training Task Force)

SUMMARY

This working paper presents a new revision to the Guidance Manual for the Implementation of a Quality Management System for the AIS/MAP of the AIM - Part 4 – First Edition 2006.

References:

- Report of the Fifteen Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/15) Río de Janeiro, Brazil, 13 – 17 October 2008.
- Report of the Eleventh Meeting of the GREPECAS Aeronautical Information Management Subgroup (AIM/SG/11) Bogotá, Colombia, 16 - 20 June 2008.
- Report of the Ninth Meeting of the Aeronautical Information Training Task Force (AIM/TRAIN/TF/9), Santa Cruz, Bolivia, 24-28 March 2008.
- Report of the Tenth Meeting of the Aeronautical Information Training Task Force (AIM/TRAIN/TF/10), San Salvador, El Salvador, 22 to 26 June 2009.

ICAO Strategic Objectives	*This working paper is related to Strategic Objectives D.*

1. Introduction

1.1 Under this Agenda Item, the meeting presented WP/3, which refers to the review and approval of the Guidance Manual for the implementation of a Quality Management System AIS/MAP for the CAR/SAM Regions, Part 4 – First Edition 2006 - Selection, Competence, Training and Requalification for the AIS personnel.

2. Discussion

2.1 The TRAIN/TF/10 meeting reviewed and analyzed the Guidance Manual giving special attention to **Chapter 2** "Competence" and **Chapter 5** "Guidance of Responsibilities and Functions of AIS/MAP Personnel".

2.2 Taking into account the AIM transition, **Chapter 2** was modified including the competences which are consider as relevant for the role that the AIS personnel must assume within the AIM environment.

2.3 Previous to the analysis and debate on the document contents, it was considered convenient to update the AIS functions, taking as a reference the documentation available which is reflected in numeral **5.3 AIS/MAP Functions**, as well as the inclusion of the AIS/MAP functions chart, classified as Operational Functions and Support, according to the transition from AIS to AIM (Roadmap for the Transition from AIS to AIM) and to the Guidance Manual for the Implementation of a Quality Assurance System for the AIS/MAP of the CAR/SAM Regions, shown in the **Appendix** to this working paper.

2.4 The meeting reviewed **Chapter- 5** "Guidance of Responsibilities and Functions of AIS/MAP Personnel", specifically **numeral 5.2.2 Organizational Functions of the AIS/MAP Units** and deemed pertinent to incorporate an example, which could be taken into account by the States of the CAR/SAM Regions when defining the AIS/MAP organizational structures in their respective States. Therefore, it was considered appropriate to incorporate in the Guidance Manual for the Implementation of an AIS/MAP Quality Management System in the CAR/SAM Regions, Appendix 6 entitled "Example of Organizational Functions in the AIS/MAP Units".

2.5 Likewise, having as a reference the transition from AIS to AIM, the Task Force considered adding the AIM Quality Assurance Areas and the AIM Database in the previous AIS/MAP Organizational Structure with its respective functions and competences.

3. Considerations

3.1 Considering that the Guidance Manual for the Implementation of a Quality Assurance System of the Aeronautical Information Management (AIM), was reviewed during the TRAIN/TF/10 Meeting, making the respective modifications for the role that the AIS personnel will assume within the AIM environment.

4. Suggested action

4.1 The meeting is invited to:

a) Take note of the contents of this working paper.

b) Submit for the Meeting's consideration the approval of the following draft conclusion on the revision made to the Guidance Manual for the Implementation of a Quality Management System, initially for the AIS/MAP and adapted to the Aeronautical Information Management (AIM).

DRAFT
CONCLUSION 12/XX: GUIDANCE MANUAL FOR THE IMPLEMENTATION OF A QUALITY MANAGEMENT SYSTEM APPROVAL OF UPDATES ORIENTED TO THE AERONAUTICAL INFORMATION MANAGEMENT (AIM)

That States/Territories/International Organization, approve the revisions to the Guidance Manual for the Implementation of a Quality Management System considering the transition from AIS to the Aeronautical Information Management (AIM), contained in the Appendix to this working paper.

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AIM/SG/12 – WP/18

APPENDIX

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GUIDE FOR THE IMPLEMENTATION OF AN AIS/MAP QUALITY MANAGEMENT SYSTEM IN THE CAR/SAM REGIONS

PART 4:

SELECTION, COMPETENCE, TRAINING, AND REQUALIFICATION OF AERONAUTICAL INFORMATION SERVICE PERSONNEL

REVISION - 2009

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP

(GREPECAS)

Table of Contents

1. Guidance on Selection and Training

1.1 Introduction

This part of the Guide for the Implementation of an AIS/MAP Quality Management System in the CAR/SAM Regions seeks to provide the States with guidance material on the selection, competence, training, and requalification of AIS/MAP personnel.

It is recommended that this guidance material be used as a guide for the States when developing their own selection and training procedures.

1.2 Selection Principles

AIS/MAP personnel should be recruited and selected based on the high sense of responsibility, reliability, precision working capacity of the candidate, and other aspects that show a level of education, maturity, and skill consistent with job requirements, as well as on the psychological profile, in a fair and open competition, in order to ensure that the most qualified personnel join the AIS/MAP area.

When assessing the relative efficiency of candidates, consideration should be given to their skills, qualifications, experience, work performance and personality, to the extent such aspects are important or potentially important for an effective fulfilment of duties.

1.3 The First Step

Before starting the selection process, a series of documents that clearly identify the work to be carried out should be available. Normally, these documents are provided through a contest process, namely:

- a job description;
- a statement of duties and/or responsibilities; and
- the selection criteria or requirements based on which the candidates will be assessed.

The job description and the statement of duties and/or responsibilities define the requirements of the job being applied for; the arrangements for, and objectives of performance assessments; and the relationship between the position and other AIS/MAP work areas and related services.

Chapter 5 of this Manual, “Guide on the responsibilities and functions of AIS/MAP personnel” contains a detailed description of the job to be carried out, and its duties/responsibilities.

The selection criteria or requirements must define the way in which applicants will be assessed for hiring.

1.4 The Selection Process

Generally, a Selection Committee will be established with a minimum of two members, for the selection of

the best candidate. At least one of the members will belong to the area where the position is being offered. Committee members will be selected based on their merits and performance, and preferably must be appointed by top management.

If necessary, the Committee can prepare a short list of the most suitable candidates for further analysis, based on their claims regarding the selection criteria and/or the comments of the evaluator.

Even if there is only one candidate for a job, it is recommended that the Selection Committee do the analysis and evaluation. In case it is decided that the candidate does not meet the requirements, the Committee will require a new contest.

The Selection Committee should decide on the procedures to be followed and the sources of information to be used for assessing candidates, based on the selection criteria or requirements. There are several sources of information for determining the eligibility of a candidate, and these sources could be part of the dossier of the applicant. Sources of information can include:

- the personal application,
- the interview,
- the *curriculum vitae* containing background and experience,
- the evaluation results,
- work references, and/or
- proof of performance,
- psychological profile.

The Selection Committee is responsible for ensuring that the group of candidates have the sufficient qualities or skills to justify the evaluation or analysis. The procedures followed by the Selection Committee will permit a full investigation of the claims and merits of candidates, which will be assessed based on the selection criteria.

A selection report will be prepared, describing in detail the evaluation and analysis made of the candidates by the Committee, and providing sufficient information for making a decision. The report will serve as a basis to provide advice to those candidates that failed and for any revisions that might be requested as a result of the selection decision.

All of the candidates interviewed for a job and who failed should be summoned by the Committee and be notified of the results, and should have the opportunity of receiving a report on their performance during the process is they so wish. Likewise, candidates that were not scheduled for an interview should also be informed in that respect.

1.5 Training

Given the current aeronautical environment and AIS/MAP responsibilities within the State, a basic requirement for candidates to a job should be to have approved the AIS/021 Basic Course. Likewise, if the selected candidate has followed the AIS/021 Course but has been away from the activity for a long time, his/her AIS on-the-job training can be broken down in several stages.

Stage 1 involves “basic skills”, with emphasis on informing the new personnel about the purpose, role, and responsibilities of AIS/MAP personnel.

Stages 2 and 4 are evaluations carried out following Basic Training and On-the-job Training.

Stage 3 covers topics concerning on-the-job training.

Stage 5 consists of a more advanced training and applies to personnel that have been working in AIS for more than one consecutive year.

This training process can last 2 to 6 months, depending on the complexity of the area, the new procedures being applied, and the skills and knowledge of the candidate.

The training process is illustrated in the following table.

Stage	Description
	Selection of new personnel
1.	Basic training
2.	Training assessment
3.	Area assignment - On-the-job training (task-specific)
4.	Performance evaluation
5.	Psychological profile
6.	Professional development

Appendix 1 contains a flow chart of the various stages of the Selection and Training Process.

Stage 1 - Basic Training

Following a proper selection process, new AIS personnel will have the necessary basic knowledge, acquired prior to the AIS/021 Course, that will enable them to fulfil the AIS/MAP responsibilities and functions assigned to them. Once they are in the assigned area, an experienced member of the staff will be appointed to supervise and guide the new personnel during the more formal generic training, until they show that they have acquired the basic knowledge required in the area.

This initial training requires the new personnel to study basic reference documents and then to be assessed to confirm that they have the level of knowledge and skill required to start on-the-job training (Stage 3).

Stage 2 – Training Assessment

The assessment is designed to ensure that the new personnel clearly understand the role, functions, products, procedures, and structure of the AIS.

Once the new personnel have shown their competence through a “Basic AIS/MAP Knowledge” assessment, they may start working under intermittent supervision.

Each AIS/MAP service should specify the duration of Basic Training as part of the general training plan. If the new staff have followed the AIS/021 Basic Course not long before job assignment, the duration of on-the-job training will be much shorter compared to the case in which a long time has elapsed between the course and entry to the AIS/MAP service, since, in the latter case, more time will be required to refresh the knowledge and become familiar with AIS/MAP activities and processes, and with the changes and provisions that may have been introduced.

The following table describes the AIS/MAP Basic Knowledge and associated reference documents that will facilitate the development of the evaluation form and the conduction of the assessment. Appendix 2 contains a sample evaluation form with the respective instructions for use and completion.

Topic	Reference Document
Legislation	National legislation, Doc 8126, Annex 15
AIS responsibilities, area of responsibility, functions, scope, and purpose	National legislation, Doc 8126, Doc 7192, Annex 15, AIP
Quality management systems	Annex 15, Annex 11, ISO 9000 series, Manual on Quality, Processes and Procedures
Source of aeronautical information and data collection	National legislation, Doc 8126, AIP
Organisation of the AIS	National legislation, internal flow chart, Doc 8126, AIP
Relationship between AIS and internal and external stakeholders, customers, and audit areas	Quality Manual, Process Cards, Technical Manuals, AIS Business Plan
AIRAC	Doc 8126, Annex 15, AIP
AIS integrated documentation package	Doc 8126, Annex 15, AIP
Codes and abbreviations, location indicators, and exchange of information	Doc 8126, 7910, 8585, 8400, 7383, 8643, Annex 15, AIP
Aeronautical charts	Doc 8697, Annex 15, Annex 4, AIP
AIS integrated automated systems	Doc 8126, User Manuals
File transfer management	User Manual
Word processing	User Manual
Database	User Manual
Spreadsheet	User Manual

Stage 3 - Area Assignment - On-the-job Training

On-the-job training is necessary for both new personnel and for personnel being transferred to a new work group within the AIS/MAP service.

An experienced member of the work group will provide on-the-job training. This training is informal in nature and is aimed at helping the new member of the group to adapt and become familiar with standard operating procedures, work processes, labour regulations, and data structures related to a given AIS/MAP function.

Special attention should be given to on-the-job training of the staff that will be responsible for issuing NOTAMs, considering that, since NOTAMs are issued with very short notice, most likely there will be no

time to validate the information to be published and errors are normally detected after NOTAMs have been issued and broadcast.

The topics to be covered in this type of training will depend on the specific functions of the job. It is not necessary for all new personnel to receive training in all of the areas.

The evaluation of this training phase is ongoing and is part of the performance assessment process.

Stage 4 - Performance Assessment

Performance assessments of all the personnel should be carried out regularly, at least once a year, and should include:

(a) the establishment of objectives for the following period;

(b) the monitoring of the performance and results obtained by the staff in the area, in relation to the objectives established for the period under study; and

(c) the identification and conduction of any training required.

Performance rating details should be analysed and kept in the individual file of each staff member of the area under study.

Appendix 3 contains a sample Performance Assessment form.

Stage 5 - Professional Development

In the last few years, AIS/MAP has evolved very quickly and we are on the verge of a transition to the new AIS/MAP concept: Aeronautical Information Management (AIM).

In order to ensure the professional development of AIS/MAP personnel, learning needs shall be identified and specific courses designed based on the new requirements. Records should be kept as evidence of personnel training and professional level, for the assignment of functions and responsibilities.

This policy is applied throughout the working life of AIS/MAP personnel, providing them with updates, requalification, and training courses on advanced applications and new operational methods. These courses are not limited to computer applications but also cover general and quality management techniques and philosophies.

These courses can be outsourced as needed, or in the best of cases, could be provided by a member of the AIS/MAP organisation with experience and who is responsible for the implementation of new procedures, normally belonging to the aeronautical authority in charge of service planning and organisation.

The personnel should be encouraged to improve their skills in their free time, and be provided the corresponding support. This may include higher education or technical skills, which will undoubtedly have an impact on their performance and professional education.

1.6 Training and Skills

The skills required for each position are described in detail in the respective Job Description for each functional area of AIS/MAP. Individual training requirements are identified based on these skills and on the initial and regular performance assessments.

1.6.1 Training of New Personnel

The training requirements of new personnel can be identified in an interview with the new staff member, and are implemented through a Training Plan. The Training Plan will identify all the relevant topics in which training will be required, the implementation schedule for each item (completion date or period) and, if applicable, the level to be achieved.

Upon completion of each training item, the results are recorded in the Training Plan, which could take the form of a checklist. A sample checklist appears in Appendix 4.

1.6.2 Training for Existing Personnel

The AIS/MAP manager should develop ongoing training programmes to keep personnel updated on the methods applied in each position and to make sure that all staff members receive the necessary training to meet the requirements of the Job Description and the Definition of Responsibilities.

This can be done as part of the annual performance assessment, recording in the Personal Development Plan any training requirement that is identified. Details of the training provided to both new and existing personnel shall be recorded in their individual files.

1.6.3 Abilities of New Personnel

New personnel shall demonstrate that they have the appropriate experience and skills for the position to which they have been appointed. Initially, this will be determined through the selection process.

The performance of new personnel shall be reviewed three months after appointment. To meet this requirement, daily performance is normally analysed based on the Training Plan and the reports of instructors or tutors.

If the staff member proves to have the appropriate abilities at the end of the Training Plan or at the end of the first 3 months of work (regardless of the position), he/she may be considered as definitely assigned to that job. From there on, he/she shall meet the same ability requirements as the existing staff.

1.6.4 Abilities of Existing Personnel

In order to maintain their abilities, staff members must comply with their specified responsibilities. The abilities of staff members shall be examined at least once every six months or other appropriate interval, depending on the nature of the respective job.

If an existing staff member is absent from work for more than 6 months, his/her performance should be reviewed during the month after his/her return, or until he/she shows an appropriate level of competence. Performance attributes to be assessed depend on the job, the duration of the absence, and the nature of the job being performed. This should be determined in agreement with the staff member.

1.6.5 Record of Abilities

AIS/MAP management should keep a detailed record of ability assessments in the individual file of each staff member.

2. Competence

ISO 9001:2000 standard "Quality Management System – Requirements", when referring to human resources, states that the staff performing functions that affect the quality of the product/service must be competent, on the basis on the appropriate education, training, abilities, skills, and experience.

Every AIS/MAP organisation must determine the competencies required from the staff working in each AIS/MAP functional area and stage.

Given the impact of aeronautical information and data on safety, strict quality requirements have been established (accuracy, resolution, and integrity) for them.

The personnel that handle information and data are an important part of this system and, thus, must have the necessary skills and competencies for working in a quality system environment. Within this context, competence management objectives must include the following:

a) the identification of the functions to be performed, according to the job;

b) the identification of the knowledge and skills required for each stage of the process; and

c) the assurance that the personnel assigned to the various functions have the knowledge, skills and competencies required to perform such functions.

Chapter 5, "Guide on the responsibilities and functions of AIS/MAP personnel", defines the responsibilities, functions, and requirements of AIS/MAP personnel in order to meet current air navigation requirements.

AIS/MAP staff must be duly qualified and competent to fulfil their tasks. Not only must they be aware of the requirements in Annex 15 - Aeronautical Information Services, Annex 4 - Aeronautical Charts, Doc 8126 – Aeronautical Information Services Manual, and Doc 8697 - Aeronautical Chart Manual, but must also fully understand customer needs in order to make sure they get all the information with the required quality and in a concise, clear and timely fashion.

In order to achieve this, staff members need to be competent and skilled in the management and processing of aeronautical information/data and understand the nature of the information and how it will be used. The precise knowledge and skills will depend on the specific AIS/MAP function performed by technical personnel.

AIS/MAP services of the States have been structured in the following functional areas of responsibility:

- AIS/MAP head office;
- AIS publications;
- Aeronautical charts;
- International NOTAM Office (NOF);
- Aerodrome AIS unit;
- AIM quality assurance (AQM); and
- AIS databases.

The knowledge and competencies required from the experts and staff members in these AIS/MAP functional areas are described in Chapter 6 of this Manual.

3. Training

Aeronautical information/data are considered to be a strategic resource of each State; the provision of aeronautical information/data is increasingly important in the aeronautical environment, since erroneous data can affect safety.

In view of the above, each State must take the necessary measures to ensure that new AIS/MAP personnel have the training required for working in this area. ICAO, through its training manuals, has established the minimum requirements for personnel wishing to work in the AIS/MAP area, and has also made available to the States the AIS/021 Course, with a view to ensuring basic training for AIS/MAP personnel.

3.1 Minimum Requirements for Applicants to the AIM Basic Course

Applicants to AIS/MAP technical officers must meet some training requirements that reflect their level of education, personal maturity, and skill for the work to be carried out. In this sense, applicants must:

a) be at least 18 years old at the time the training starts;

b) have satisfactorily completed high school or equivalent studies;

c) demonstrate knowledge of mathematics and geography, by means of an assessment;

d) demonstrate oral and written knowledge of the language of the State;

e) know how to use computers and basic operating systems; and

f) be able to speak and understand the English language at the level required by the State, to be demonstrated through oral and written tests.

Note 1. – Before starting work in an aerodrome ARO/AIS/MAP unit, applicants must show proficiency in aeronautical English at the level required by the State.

3.2 Training Facilities

In order to work in any AIS/MAP functional area, staff must have basic aviation knowledge, in view of the nature of aeronautical information, which covers a broad range of aeronautical activities, and the fact that the main customers of the aeronautical information provided by the AIS/MAP in the aeronautical community are flight crews.

4. Requalification

In the last few years, aeronautical information has changed significantly. Consequently, States must pay special attention to the requalification or specialisation of AIS/MAP staff.

Requalification can involve specialisation courses to acquire more in-depth knowledge on the specific area or to introduce new changes, procedures, or operating methods.

Requalification or specialisation will be mainly based on courses designed for each AIS/MAP functional area, and can be designated as follows:

- Course for aerodrome AIS specialist;
- Course for NOTAM specialist;
- Course for AIS publication specialist;
- Course for aeronautical mapping specialist; and
- Course on aeronautical information management (AIM).

Other specialised courses can be followed by those responsible for AIS/MAP services, based on their own needs and experience. Quality management systems have a quite broad documentary basis that describes activities and assessment methods. The implementation of a quality management system involves the introduction of processes that are described through quality procedures; these procedures are a good reference for providing AIS/MAP requalification or specialisation courses.

It is recommended that States that have implemented an AIS/MAP quality management system provide training on its management and quality procedures.

Appendix 5 shows the flow chart that must be taken into account for the AIS training process.

5. Guide on Responsibilities and Functions of the AIS Personnel

5.1 General

5.1.1 Introduction

In Annex 15, "Aeronautical Information Services", the International Civil Aviation Organization (ICAO) stipulates that the purpose of the aeronautical information service is to ensure the distribution of the information required for the safety, regularity, and efficiency of international air navigation. The function and importance of aeronautical information/data changed significantly with the implementation of area navigation (RNAV), the required navigation performance (RNP), and automated on-board navigation systems. Altered or erroneous aeronautical information/data can affect safety.

Annex 15 also establishes that each contracting State will take the necessary measures to implement a properly organised quality management system, with the procedures, processes, and resources required for the implementation of quality management in each functional stage. If so required, quality management implementation should be demonstrated for each functional stage.

ISO 9001:2000 standard, "Quality Management System", recommended for the implementation of quality management systems in AIS/MAP services, establishes requirements for the assignment and communication of the responsibilities of the staff providing the service, requiring top management to make sure that responsibilities and authorities are defined and communicated within the organisation.

The aeronautical information services in each State are responsible for providing efficient aeronautical information/data of the required quality, through the appropriate AIS/MAP staff and the equipment they will need to efficiently fulfil their responsibilities.

The provision of quality aeronautical information/data is based on the criteria established in ICAO Annex 15 – Aeronautical Information Services, Annex 4 - Aeronautical Charts, Doc. 8126 – Aeronautical Information Services Manual, Doc 8697 – Aeronautical Chart Manual, and Doc. 9674 - World Geodetic System – 1984 (WGS-84).

5.1.2 Evolution of AIS/MAP

The Eleventh Air Navigation Conference defined the role to be played by aeronautical information within the Global ATM Operational Concept. Upon defining the seven "components of the concept"--seen as integrated blocks or services of the ATM system *(airspace organisation and management; aerodrome operations; demand/capacity balancing; traffic synchronisation; conflict management; airspace user operations, and ATM service provision management)*--, the Conference considered that the "glue" binding these components was the management, use, and transmission of data and information, thus the need for the operational ATM to rely on real-time aeronautical information of high quality and integration. To this end, not only a high level of training and knowledge of AIS/MAP personnel must be defined, but also new responsibilities and functions that will permit an effective transition to aeronautical information management (AIM) and organisational structures that ensure change.

The AIM concept requires an environment rich in information, whose integrity must be ensured by quality systems. Aeronautical information must be produced, from its origin, with quality processes that ensure availability, relevance, precision, integrity, timeliness, safety, and confidentiality, given its impact on flight safety.

Starting now and throughout the transition process to the new AIM concept, new responsibilities, functions, and structures will have to be gradually introduced, based on the definition of processes that clearly describe the main activities for checking and validating the integrity of aeronautical data, from their origin to their delivery to the end user.

AIM will be implemented in a fully automated environment. Therefore, responsibilities and functions must seek to ensure the appropriate level of integrity of the data to be processed, and avoid the entry or provision of raw information from originators not authorised by the respective aeronautical authorities or other State authorities. Human factor studies have shown that manual data processing can provide integrity levels of 10^{-3} at the most. Consequently, manual entry of data must be eliminated in order to maintain the appropriate levels of integrity.

This guide describes the responsibilities and functions of AIS/MAP units and staff, applying a pre-AIM approach, where manual and automated processing coexist, but quality management systems and automation levels are needed to ensure data integrity. Personnel functions have been divided into general and specific, the latter being assigned to a generic position (*e.g.,* AIS/MAP specialist, AIS/MAP technician), but which could be assigned depending on the activities being carried out in the area concerned.

5.2 Organisation of Aeronautical Information Services

5.2.1 Organisational Structure

The aeronautical information service will receive or originate, collate or assemble, edit, format, publish/store, and distribute aeronautical information/data concerning the whole territory of the State and those areas outside its territory in which the State is responsible for the provision of air traffic services. Aeronautical information will be published as integrated aeronautical information documentation.

In order to ensure the effective operation of each functional stage described in the previous paragraph, the State shall have a suitable AIS/MAP organisation and provide AIS/MAP units with the necessary equipment and competent personnel to meet the demands and requirements of air operations.

AIS/MAP structure can vary between States. By way of example, this guide shows several types of structures that AIS/MAP services can adopt, taking into account that, at all times, the State will be responsible for the published information, despite having delegated the provision of the service to another entity, whether aeronautical or not. The structure shown for the transition or final implementation stage of aeronautical information management is only referential, to help understand the magnitude of the change. In the guidelines and regulatory texts being developed, ICAO should recommend a structure for a fully automated AIM environment.

In the current environment, and in order to provide a good aeronautical information service, the State will use the following AIS/MAP units:

- *AIS/MAP head office*
- *AIS publications*
- *Aeronautical mapping (MAP)*
- *International NOTAM Office (NOF)*
- *Aerodrome AIS unit (AIS/AD)*
- *AIS databases (AIS-DB)*
- *AIM quality assurance (AQM)*

For clarity purposes, several types of structures are shown below:

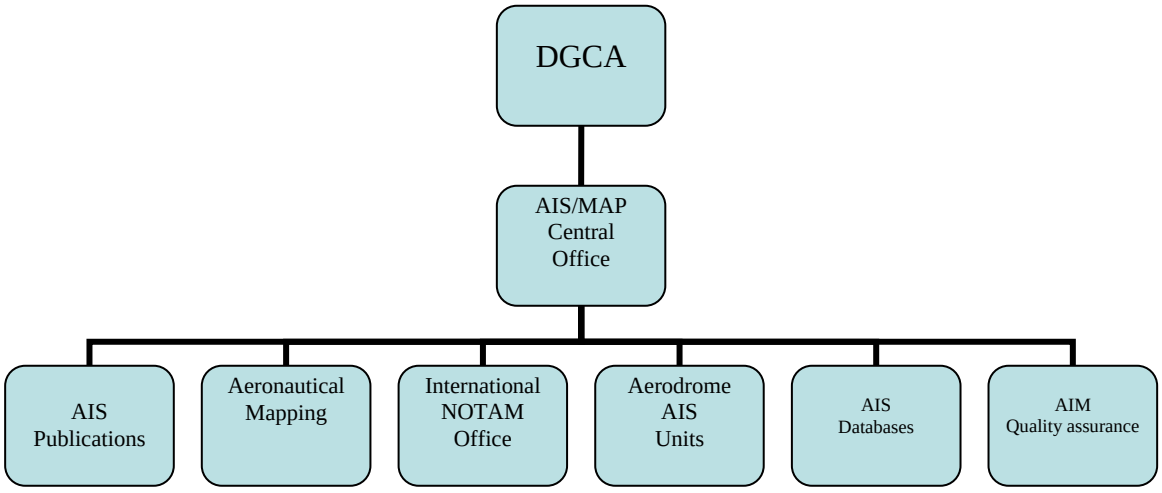


Fig. 1- AIS/MAP directly accountable to the Director General of Civil Aviation, through the AIS/MAP Head Office

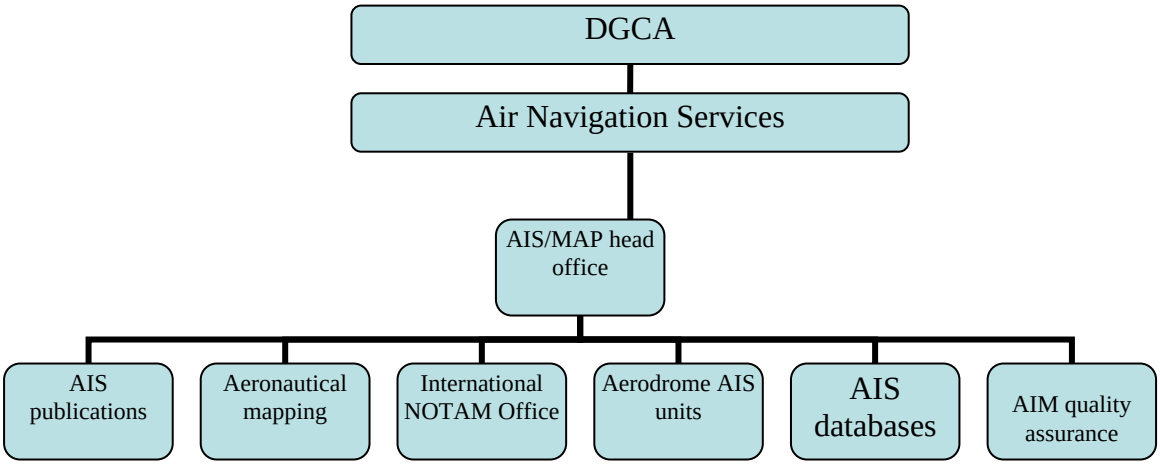


Fig. 2- AIS/MAP services are provided by a navigation service organisation, under the responsibility of the Director General of Civil Aviation.

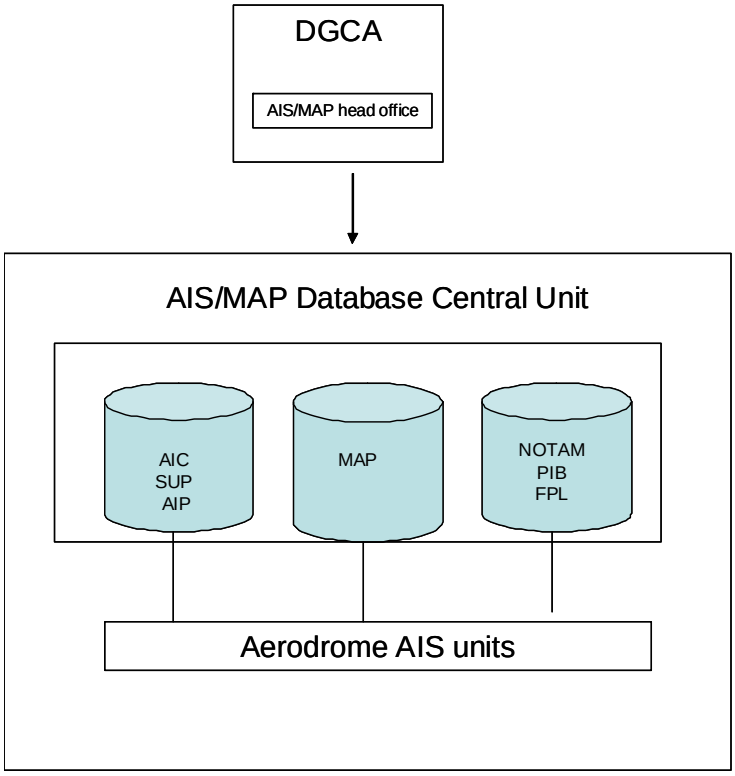


Fig. 3 - Possible AIS/MAP structure during the AIM transition process

5.2.2 Organisational Functions of AIS/MAP Units

AIS/MAP Head Office

The AIS/MAP head office will have the following functions:

a) To respond, on behalf of the State, to the establishment and/or modification of ICAO SARPs regarding aeronautical information;

b) To respond, on behalf of the State, for the provision of the aeronautical information/data listed in the AIP, AIP Supplement, and aeronautical information circulars, and for the maintenance and updating of AIS/MAP databases;

c) To verify and validate the raw data provided by other national aeronautical authorities or duly authorised units;

d) To validate and certify the aeronautical information/data distributed through the integrated documentation (AIP, AIP Supplement, and aeronautical information circulars);

e) To provide guidance for the research and development of new aeronautical information systems, in keeping with the evolution of the matter, according to ICAO;

f) To manage, provide advice on, and monitor the gradual implementation of technological

developments concerning aeronautical information services;

g) To conduct and control the implementation of quality management systems for AIS/MAP services;

h) To organise, manage, regulate, and monitor the operation of the AIS/MAP service in order to attain high safety levels;

i) To establish the necessary procedures to ensure the effective verification, validation, certification, and integrity of the aeronautical data provided;

j) To maintain close coordination with AIS/MAP services of other States;

k) To regulate the AIS/MAP training and staffing policy, ensuring a high level of knowledge about the new systems.

AIS Publications

The AIS Publications area will have the following functions:

a) To comply with the national and international regulations that will ensure the effective operation of the aeronautical information service in the area of publications;

b) To verify and control the quality of the raw aeronautical data provided, according to the established quality requirements;

c) To verify and control the quality of the information contained in the elements of the integrated aeronautical information documentation, including aeronautical charts;

d) To produce, maintain, and update the relevant elements of the integrated aeronautical information documentation:

- AIP and its amendments;
- AIP Supplements;
- AIC;
- Checklists of AIP pages, Supplements, and AIC; and
- Checklist and list of valid NOTAMs;

e) To keep the aeronautical charts published in the AIP updated, according to the established requirements;

f) To keep the AIS/MAP database updated;

g) To keep the AIS web site updated;

h) To check the quality of, and complete the data in the NOTAM issuance requests;

i) To process NOTAM requests originating in the Office;

j) To implement and maintain a quality management system to ensure continuous improvement;

k) To keep a direct and efficient link with related technical services in charge of providing raw data, with the directors of the aeronautical authority, State mapping entities, the international NOTAM office, aerodrome AIS units, and the military, for the verification, validation, processing, updating, provision, and transmission of aeronautical information/data;

l) To keep up to date the database of publication service users and their statistics;

m) To prepare the packaging and delivery, and distribute the corresponding aeronautical information to the amendment services;

n) To ensure the integrity of aeronautical data through their storage and electronic distribution;

o) To keep the list of effective pages of the AIP, AIP SUP, and AICs updated;

p) To keep the integrated aeronautical information documentation from other States updated;

q) To provide an effective advisory and consultation service regarding the integrated aeronautical information documentation;

r) To market AIS/MAP products;

s) To comply with filing parameters;

t) To control and update the records established for the Office, and ensure compliance with quality indicators; and

u) To manage the necessary inputs to ensure the uninterrupted operation of the Office.

Aeronautical Mapping

a) To comply with national and international regulations that ensure the effective operation of aeronautical information services in the area of aeronautical mapping;

b) To verify and control the quality of the raw aeronautical data provided, in accordance with the quality requirements defined;

c) To verify and control the quality of the information/data contained in the aeronautical charts;

d) To produce, maintain, and update the aeronautical charts for AIS publications, according to the established requirements;

e) To keep the mapping database updated;

f) To check the quality of, and complete the data in the NOTAM issuance requests;

g) To apply and maintain a quality management system to ensure continuous improvement;

h) To ensure the integrity of aeronautical data through their storage and electronic distribution;

i) To provide an effective advisory and consultation service concerning mapping products;

j) To comply with filing parameters;

k) To control and update the records established for the Office and ensure compliance with quality indicators;

l) To manage the necessary inputs to ensure the uninterrupted operation of the Office.

International NOTAM Office

The International NOTAM Office will have the following functions:

a) To comply with national and international regulations that will ensure the effective operation of the aeronautical information service in the area of NOTAMs;

b) To ensure the international exchange of NOTAMs;

c) To check the quality of, and complete the raw data in the NOTAM issuance requests;

d) To check, validate, and control the quality of the text contained in the NOTAMs distributed by the Office regarding our AIS area of responsibility;

e) To disseminate the necessary NOTAM information and the checklists of NOTAMs of the corresponding series, with technical professionalism, in order to contribute to the safety, regularity and efficiency of international air navigation;

f) To maintain strict control over national and foreign NOTAMs recorded in the NOTAM data bank;

g) To verify and validate the foreign NOTAMs received in the Office to ensure their addition to the dynamic database;

h) To maintain a direct link with other foreign NOTAM Offices in order to ensure the verification and validation processes, as well as the integrity of the data received and stored.

i) To check and update, on a monthly basis, the content of foreign NOTAM checklists with respect to the NOTAMs filed in the data bank;

j) To maintain a direct and efficient link with related technical services in charge of providing the raw data to be disseminated, the director of the aeronautical authority, the AIS publication office, and aerodrome AIS units, for the verification, validation, processing, update, provision, and transmission of aeronautical information/data;

k) To maintain the NOTAM data bank and its static databases updated;

l) To apply and maintain a quality management system to ensure continuous improvement;

m) To provide an efficient and uninterrupted 24-hour service, including advice and consultation on aeronautical information;

n) To keep up to date all the elements of the national and foreign integrated documentation used by the technical staff of the NOTAM Office;

o) To immediately retransmit to the military organisations and other units the information about NOTAMs received in the Office from foreign NOTAM offices on navigation and other advisories of interest for air operations;

p) To comply with filing parameters;

q) To control and update the records established for the Office, and ensure compliance with quality parameters; and

r) To manage the necessary inputs to ensure the uninterrupted operation of the Office.

Aerodrome AIS

These AIS units will be established for the provision of pre-flight information at international airports, and its functions shall be coordinated with the Air Traffic Services Reporting Office (ARO), the International NOTAM Office (NOF), and the Aerodrome Meteorological Station, establishing letters of operational agreement for improved coordination among units. Aeronautical information management (AIM) must encompass, at all levels, the management, structure, provision, and control of all the critical and relevant information for air traffic management (ATM). AIM must manage the aeronautical and meteorological information, flight plans, airspace configuration, and the status of CNS/ATM systems in real time.

The aerodrome AIS unit will have the following functions:

a) To comply with national and international regulations that will ensure the effective operation of the aeronautical information service, in the area of pre- and post-flight information and flight plan processing, as applicable;

b) To provide efficient pre- and post-flight information service, in keeping with the established requirements and in an automated and integrated environment, facilitating self-briefing of operational staff;

c) To prepare the pre-flight information bulletins (PIBs) for national and international operations originating from the airport;

d) To check and control the quality of the data in the PIBs provided to customers;

e) To receive and process the flight plans of domestic and international operations originating at the airport;

f) To efficiently manage the integrated AIS/MAP database.

g) To check the quality of, and complete the raw aeronautical data provided, according to the established quality requirements, before processing the corresponding NOTAM issuance request;

h) To process NOTAM requests that correspond to its area of coverage;

i) To keep up to date all the elements of the national and foreign integrated documentation used by the technical personnel of the unit;

j) To provide aeronautical information advisory and consultation services, supported by the aeronautical information/data available in the AIS/MAP database and integrated system;

k) To maintain a direct and efficient link with the director of the aeronautical authority responsible for validating and certifying aeronautical data, the AIS publication office, the international NOTAM office, and the related technical services in charge of providing raw data;

l) To apply and maintain a quality management system to ensure continuous improvement;

m) To comply with filing requirements;

n) To control and update the records established for the unit and ensure compliance with quality parameters; and

o) To manage the necessary inputs to ensure the uninterrupted operation of the unit.

AIM databases

The AIM database unit will have the following functions:

a) To define, in coordination with the head office, the objectives and scope of the AIM databases.
b) To identify AIS needs in terms of quantity, quality, and reliability of aeronautical information/data.
c) To define the process and apply the necessary tools for storing aeronautical information/data.
d) To check the aeronautical information/data to be entered in the database, and make sure that AIM requirements are met.
e) To maintain the integrity of aeronautical information/data.
f) To keep records of the reception and handling of aeronautical information/data.
g) To keep the AIM databases updated.
h) To have the necessary hardware and software, procuring technical support for the proper implementation of AIS automation.
i) To analyse the proposals for updating and improving AIM databases.
j) To inform heads of section about the novelties and advantages of having databases.
k) To properly coordinate with the originators of the aeronautical information/data.
l) To manage the static and dynamic aeronautical information/data to be published in the integrated aeronautical information documentation.
m) To apply the regulations required regarding cyclic redundancy checks (CRC).
n) To demonstrate the traceability of the aeronautical information/data.
r) To update the databases, according to the established quality requirements.

AIM quality assurance

The quality assurance unit will have the following functions:

a) To define the objectives, the scope, and policy of the quality management system (QMS).
b) To establish the work programme for the drafting and implementation of documents.
c) To inform all QMS stakeholders about the plans and objectives to be achieved, and to develop a strategy to raise awareness among all the personnel.
d) To determine customer needs and requirements.
e) To identify the processes required for achieving quality objectives.
f) To conduct induction sessions for directors and the staff involved.
g) To apply the available tools for planning internal audits.
h) To apply continuous improvement processes or other methods to prevent disconformities.
i) To describe the procedure to be followed for checking and validating the aeronautical information/data to be published in the integrated aeronautical information documentation, and ensure compliance with the quality requirements established in the QMS.
j) To comply with aeronautical information/data accuracy requirements according to existing regulations.
k) To maintain the integrity of aeronautical information/data in all AIS processes for quality management.
l) To keep records of each the processes established in QMS procedures.

5.3 AIS/MAP Functions

Any AIS/MAP organisation that has implemented or is planning to implement a quality management system must pay special attention to the definition of responsibilities and functions, as well as to their

communication within the organisation. It is absolutely necessary to define and assign functions and responsibilities from the start of the implementation and planning of quality objectives, which must be established in the relevant functions and levels within the organisation.

For AIS/MAP services to work efficiently and according to the defined requirements, it will be necessary to have sufficient and highly qualified personnel. In the current environment, AIS/MAP personnel working in any of the functional areas of the aeronautical information and mapping service must have the required skills and competence to perform the assigned functions that require a high level of knowledge about data quality and management requirements to guarantee the operational ATM from the point of view of the information to be provided.

With the introduction of the AIM concept, data integrity is crucial for the operations and the operational ATM in general. Consequently, AIS/MAP functions must clearly reflect their responsibility in terms of data management, and include as many verification and validation activities as possible to prevent data errors and thus the loss of information integrity.

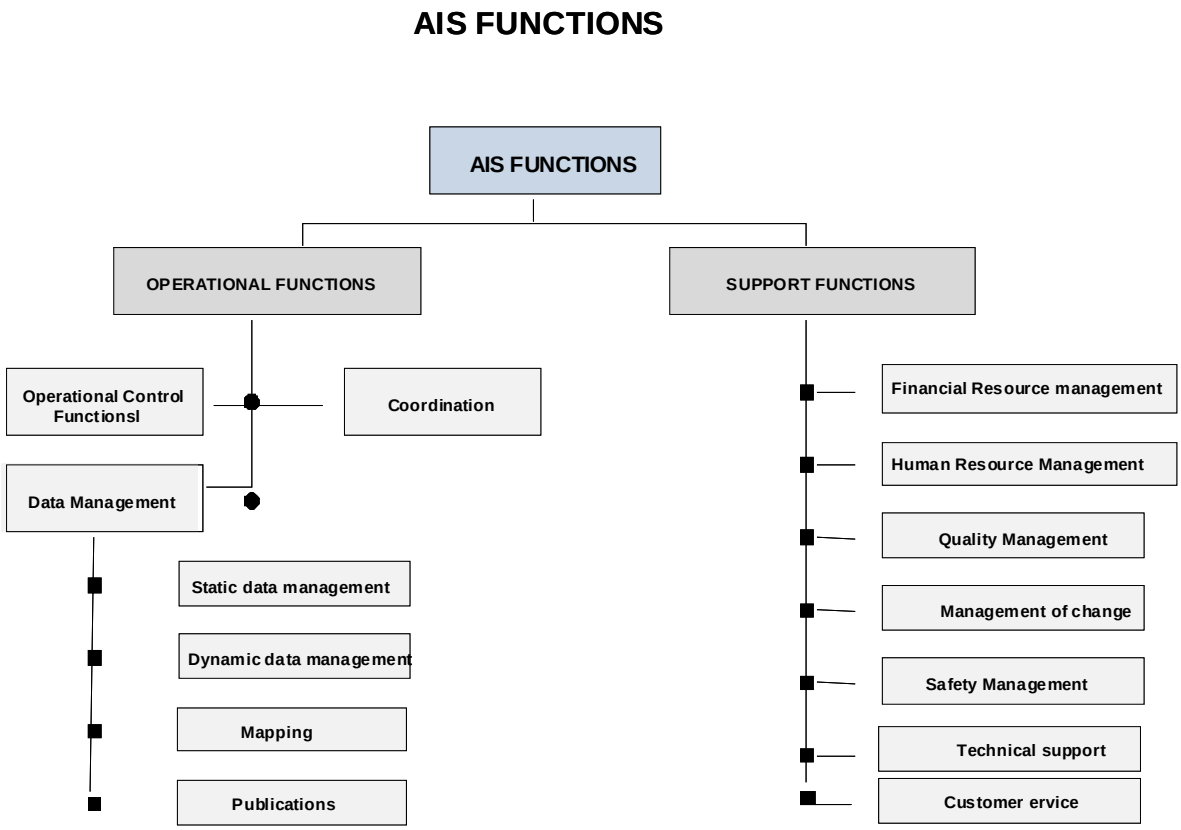


Fig. 4 - Diagram of AIS functions in the AIM transition process

A practical way of visualising the general functions and sub-functions of AIS specialties is shown in the following table:

AIS FUNCTIONS AND SUB-FUNCTIONS

OPR	**Operational**	**APY**	**Support functions**
GD	Data management	APY-a	to identify customer requirements
GD-a	to code/decode aeronautical information	APY-b	to develop a strategic business plan
GD-b	to translate aeronautical information	APY-c	to provide legal management
GD-c	to conduct aeronautical data/information quality controls	APY-d	to review national operations manuals
GD-d	to process post-flight information	APY-e	to update ICAO and reference documentation
GD-e	to provide data for the compilation of statistical data	APY-f	to compile statistical information
GD-f	to ensure the traceability of aeronautical data/information	APY-g	to print aeronautical publications
GD-g	to process raw data	APY-h	to manage inventories
EST	**Statistical Data**	APY-i	to maintain a library of national aeronautical publications
EST-a	to compile statistical data	APY-j	to develop a business plan
EST-b	to compile positioning data	**SER**	**Customer service**
EST-c	to process static data	SER-a	to manage customer accounts for AIS services and products
EST-d	to maintain a static database	SER-b	to manage the AIS customer service
EST-e	to maintain static AIS publications from abroad	SER-c	to distribute aeronautical publications
EST-f	to prepare static data for national and international databases	SER-d	to provide on-the-job assistance on AIS services and products
DIN	**Dynamic data**	**FIN**	**Financial resource management**
DIN-a	to process dynamic data from abroad	FIN-a	a financial plan
DIN-b	to publish NOTAMs	FIN-b	financial control
DIN-c	to publish the NOTAM checklist	FIN-c	to carry out financial transactions
DIN-d	to publish trigger NOTAMs	**HUM**	**Human resource management**
DIN-e	to publish ASHTAMs	HUM-a	to ensure the availability of sufficient AIS personnel
DIN-f	to publish SNOWTAMs	HUM-b	to define training requirements
DIN-g	to produce PIBs	HUM-c	to organise and monitor training
DIN-h	to prepare adjusted dynamic data	HUM-d	to prepare job descriptions
CAR	**Charts**	HUM-e	to carry out the personnel recruitment and selection process
CAR-a	to maintain a chart library	HUM-f	to ensure compliance with AIS personnel competence requirements
CAR-b	to publish aeronautical charts	HUM-g	to do the human resource planning
PUB	**Publications**	**AQM**	**AIS AIM quality management**
PUB-a	to publish AICs	AQM-a	to establish a quality system
PUB-b	to publish AIPs	AQM-b	to maintain a quality system
PUB-c	to publish AIP amendments	AQM-c	to monitor customer satisfaction
PUB-d	to publish AIP SUPs	**CAM**	to manage change
PUB-e	to publish NOTAM lists	CAM-a	to identify opportunities for change and trends
PUB-f	to publish additional information for specific purposes	CAM-b	to plan changes

FCO	**Operational control functions**	CAM-c	to implement changes
FCO-a	to supervise data management	CAM-d	to review the results of changes
FCO-b	to supervise customer services	**GES**	**Safety management**
FCO-c	to manage human resources	GES-a	to analyse safety enhancement reports
FCO-d	to develop operational standards and methods	GES-b	to implement safety enhancement procedures
COR	**Coordination**	GES-c	to conduct safety assessments
COR-a	to coordinate with the sources of data	GES-d	to implement procedures to eliminate risks
COR-b	to coordinate with other AIS functions	GES-e	to establish a safety management system
COR-c	to coordinate with customers	**TEC**	**Technical**
		TEC-a	to design technical systems
		TEC-b	to implement technical systems
		TEC-c	to maintain technical systems
		PAS	**Additional provision of services**
ARO	**ARO Functions**	PAS-a	to provide additional commercial services
ARO-a	to receive post-flight information and transmit it to the AIS/ATS	PAS-b	to provide other national services
ARO-b	to compile statistical data	PAS-c	to provide specific national information
ARO-c	to process FPLs and FPL-related messages	PAS-d	to provide other aviation-related publications
ARO-d	to provide pre-flight information		
ARO-e	to support the investigation of incidents (under the ARO perspective)		
ARO-f	to process flight data for aerodrome control		
ARO-g	to publish SNOWTAMs		

6. Knowledge that AIS/MAP experts should have

AIS/MAP experts should have a general knowledge about:

a) National regulations, AIS procedural handbooks, instructions, and other guiding documents.

b) Microcomputers, Windows, word-processing and image applications, Internet Explorer, networking and databases.

c) The elements of the integrated aeronautical information documentation and their specifications.

d) ICAO documentation on AIS/MAP.

e) The Spanish and English languages, enough to fulfil the corresponding tasks.

f) Specific aeronautical knowledge acquired in the AIS/021 Basic Course.

g) Quality management system procedures that describe AIS/MAP activities and processes, and their implementation.

Specific knowledge of the NOTAM expert:

a) The means and methods to receive and assess aeronautical information/data for the issuance of NOTAMs.

b) Coding of information according to the NOTAM Code and selection criteria.

c) Correction of NOTAM texts, using the uniform abbreviated phraseology.

d) Quality verification and control of NOTAM texts published at the NOF.

e) Controlling the updating and quality of the domestic and foreign NOTAMs recorded in the NOTAM database.

f) Updating and management of the static and basic data of the NOTAM database.

g) Preparation of the monthly checklist of valid NOTAMs.

h) Updating of all the elements of the national and foreign integrated documentation.

i) Interpretation of the aeronautical charts.

j) Providing advice and responding to queries on national and foreign NOTAMs.

k) Exchange of NOTAM information with other NOFs and with the rest of State AIS/MAP units and related technical services.

Specific knowledge of the aerodrome ARO/AIS expert:

a) Knowledge and control of valid national NOTAMs concerning the aerodrome and the area of coverage in general.

b) The local conditions at the aerodrome or its surroundings that do not require the initiation of a NOTAM for pilot briefing.

c) Processing of the corresponding NOTAM issuance requests.

d) Updating of all the elements of the national and foreign integrated documentation

available.

e) Identification and use of the various types of pre-flight information bulletins (PIBs).

f) Development of the various types of PIB.

g) Checking and controlling the quality of PIB texts.

h) Provision of the pre- and post-flight information service.

i) Interpretation of aeronautical charts and their use for briefing and for the production of the PIBs and FPLs.

j) Maintaining and updating self-briefing bulletin boards.

k) Providing advisory and consultation service through briefings to flight crews and flight operations personnel.

l) Advising the crew and operations personnel about the production of flight plans (FPLs).

m) Receiving and processing flight plans and related messages.

Specific knowledge of the publications expert:

a) Collation, editing, formatting, and distribution/storage of the integrated aeronautical information documentation.

b) Checking the quality of aeronautical information/data to be published, based on data quality requirements.

c) Classification of the information received and identification and selection of the type of element of the integrated documentation to be published.

d) Identification of the sources of raw information/data authorised by the aeronautical authority to notify the information to be published.

e) Keeping the integrated AIS documentation package constantly updated.

f) Updating the database of users of the publications service and their statistics.

g) Preparing the delivery and packaging for distribution of aeronautical information to users.

h) Interpretation of the aeronautical charts.

i) Selling the AIP and billing for the annual amendment service.

j) Maintenance of the historical information and records of the whole amendment process.

k) Provision of advisory and consultation service.

l) Processing the corresponding NOTAM issuance requests.

m) Maintaining an effective link with AIS/MAP services of other States, national AIS units, and related technical services.

Specific knowledge of the aeronautical mapping expert:

a) Identification of the different types of aeronautical charts.

b) Checking the quality of the aeronautical information/data to be published in the charts.

c) Editing and updating of the aeronautical charts.

d) Maintaining and updating the mapping database.

e) Mastering and applying computer programmes for chart production and editing.

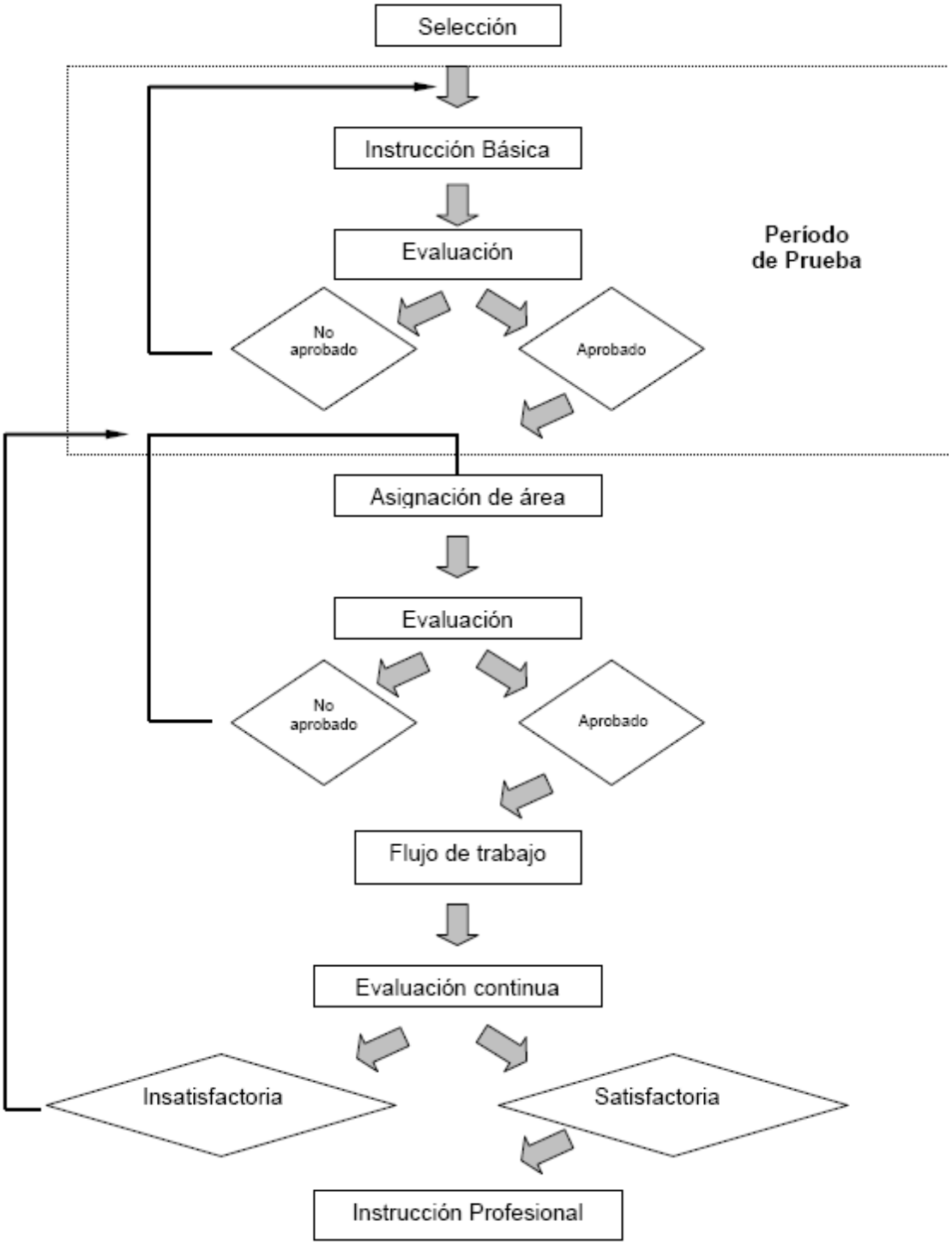
f) Mastering and managing geographic information systems (GIS).

g) The details and specifications of aeronautical charts.

h) Full knowledge of WGS-84 specifications.

i) Aeronautical data quality requirements.

Appendix 1 - Example of a selection and training process



Appendix 2 - Sample form to provide information about trainee assessment

WEEK:

Trainee:	**Instructor/Officer:**	**Position:**	**Date:**
Pre-flight information and flight plan acceptance			**1 2 3 4 5**
Understanding the informative material Clear understanding of pilot requirements Correct management of data errors and omissions	Understanding flight planning requirements (national/international) Being aware of technical responsibilities Application of standard information		☐
Flight plan processing and message handling			**1 2 3 4 5**
Correct verification of processed messages Correct addressing of messages Standard flight plans Use of the correct procedures Timely and precise distribution of messages Efficient use of PDAIs Military addressing ZP procedures			☐
Phraseology and communications			**1 2 3 4 5**
Uses standard phraseologies Adjusts the style of the information to the person receiving it	Clear and concise oral expression Confident oral expression; improvises if necessary		☐
Handling of equipment			**1 2 3 4 5**
Information system Reporting of failures	Telephone/PABX Fax Frequency management		☐
Knowledge of airspace/geography			**1 2 3 4 5**
Classes of airspace Areas of responsibility	Prohibited, restricted, and dangerous areas Locations		☐

Documents and local procedures				**1 2 3 4 5**
Knowledge of documents, maps, and charts	Local instructions Contingency plan			☐
Coordination				**1 2 3 4 5**
Coordination	Transfer/relief	Other agencies		☐
Abnormal situations	Keeps the supervisor informed			
Workload management				**1 2 3 4 5**
Prioritises tasks	Speed and precision	Keeps the supervisor informed		☐
Team work				**1 2 3 4 5**
Cooperation and team work				☐
Customer service				**1 2 3 4 5**
Public relations	Courtesy	Enthusiasm		
Comments by the trainee				
Comments by the instructor				
Areas identified as needing additional work				

Corrective training action plan	
Signature of the trainee and date:	**Signature of the instructor and date:**
This means that both parties agree with the corrective programme	

Instructions for using this form

- This form shall be completed:

  at the end of each week of training

For weekly assessments:

- A grade of 3-5 will be considered satisfactory.
- A grade of 1-2 will be considered unsatisfactory and a corrective action plan shall be applied.

For extraordinary assessments:

- Passing grade is 3-5.
- A failing grade (*i.e.*, 1 or 2) indicates that a formal corrective action plan might be required (subject to management approval). Following corrective action and a second assessment, non-compliance may result in a recommendation for cancellation.

Appendix 3 - Sample performance assessment form

NAME OF EMPLOYEE:	POSITION:
ORGANISATION:	LOCATION:
REPORTS TO:	DATE OF APPOINTMENT:

ASSESSMENT PERIOD: FROM..... TO.....

INSTRUCTIONS

Performance shall be formally assessed at least once a year, with a mid-term performance review as a minimum.

Performance shall be assessed based on the annual objectives established by the staff and the manager/supervisor at the beginning of the assessment period and/or the main outcome areas contained in the job description.

Before the interview and separately, the staff member and the manager/supervisor should do their own assessment of the performance, training, and development requirements. After commenting on, and formally reviewing the assessment, a copy of the completed form should be sent for filing in the personal file of the staff member.

Two copies shall be made of the completed form: one will stay with the staff member and the other will be kept in his/her personal file. Access will be strictly granted when there is a specific need to obtain the information. Forms can be destroyed TWO years after the date of the evaluation.

PERFORMANCE RATING

1.	Excellent	Consistent and outstanding compliance with performance objectives.
2.	Superior	Consistent compliance with objectives, generally above the level required.
3.	Satisfactory	Fully competent; acceptable compliance with performance objectives.
4.	Appropriate	Performance does not always meet the required standards. Individuals promoted during the last six months and who could be considered as trainees in that position should be classified in this level.

5.	Unsatisfactory	Performance is normally below the minimum acceptable. Frequent non-compliance with performance objectives. Individuals should be participating in a discipline advisory process.

PERFORMANCE ASSESSMENT

RESULTS OF THE COMPLIANCE WITH OBJECTIVES AND PLANS

These are the objectives and/or main outcome areas agreed upon at the beginning of the assessment period. These should be taken from the worksheet of the personal performance agreement, which should be attached to this document.

OBJETIVES/PLANS	**COMMENTS/PERFORMANCE INDICATOR**	**RATING**
1.		
2.		
3.		
4.		
5		
6.		

PERFORMANCE RESULTS

PERFORMANCE ACTIVITIES	**COMMENTS/PERFORMANCE INDICATOR**	**RATING**
Quality of work		
Creativity and initiatives		
Knowledge of the work being carried out		

PERSONAL ATTRIBUTES

These factors must be considered for purposes of performance and/or professional development of the individual.

1)	List the characteristics that will contribute to the success of the individual being assessed
2)	List the characteristics that require further development or reinforcement

TRAINING AND DEVELOPMENT

	COMMENTS	**RATING**
PARTICIPATION IN TRAINING ACTIVITIES What training or development activities have been carried out during the year? (List programmes or specific activities)		
PRACTICAL APPLICATION OF TRAINING RESULTS How do you apply the acquired knowledge to your daily work?		
TRAINING REQUIREMENTS What training and development do you think you will need in the next 12 months?		

ORGANISATIONAL IMPROVEMENTS

	COMMENTS	**RATING**
INTRODUCTION OF IMPROVEMENTS IN YOUR POSITION OR AREA		
ORGANISATION OF YOUR POSITION		

RECOGNITIONS

Any recognition on account of performance results during the assessment period will be recorded.

1)	List the recognitions granted.

TRAINING AND DEVELOPMENT OBJECTIVES AGREED FOR (period)

As a result of the discussion, describe in detail the development objectives agreed upon.

OBJECTIVE	LOCATION	DATE	PRIORITY

PERFORMANCE SUMMARY

GENERAL PERFORMANCE RATING:

1	2	3	4	5

See the definition of each performance rating on page 1.

COMMENTS BY THE SUPERVISOR/MANAGER

Comments should refer to the performance assessment and to the discussions during the interview.

COMMENTS
RECOMMENDATIONS

MANAGER/SUPERVISOR Name: Position:

Signature: Date:

COMMENTS BY THE EMPLOYEE

The employee will make comments if he/she disagrees with the results of the assessment, and will provide the respective arguments.

Appendix 4 – Training Plan. Example of training checklists

Issuance of NOTAMs

Topics	Competent (yes)	Date	Initials of on-the-job instructor	Initials of trainee
Reception of the request for issuance				
Verification of the information received				
Collation of information				
Consultation with the originator, if required				
Editing of NOTAM				
Use of NOTAM format				
Validation of NOTAMs prior to distribution				
Use of addressing for distribution				
Storage/filing of NOTAMs				

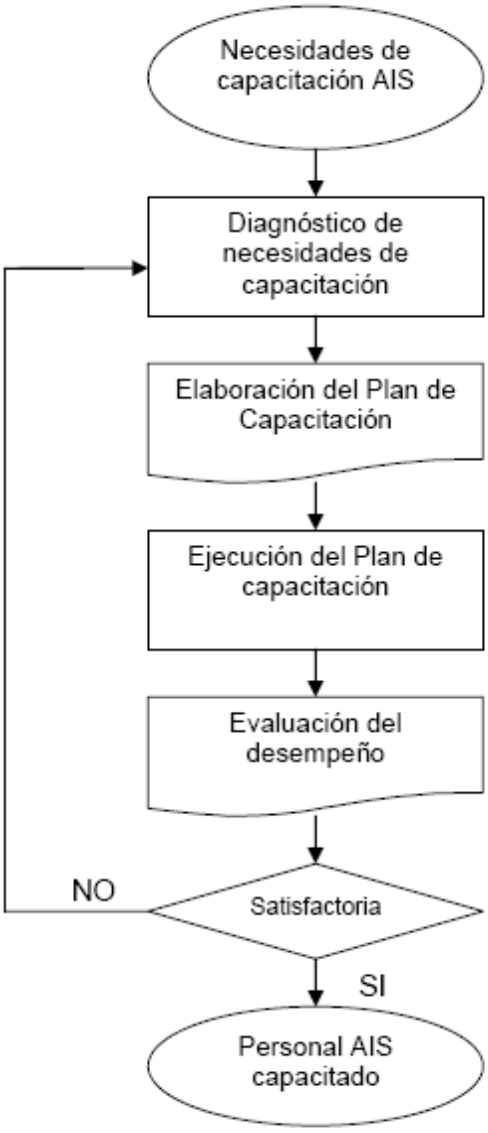
Update of static data in the database

Topics	Competent (yes)	Date	Initials of on-the-job instructor	Initials of trainee
Reception of aeronautical data				
Verification of the data source				
Classification of aeronautical data				
Verification of data				
Consultation with the originator or document if necessary				
Introduction and/or updating of data				
Validation of the operation performed				

Updating of the integrated documentation from abroad

Topics	**Competent (yes)**	**Date**	**Initials of on-the-job instructor**	**Initials of trainee**
Reception and classification of the information				
Amendment and verification of the information				
Filing of documentation				
Updating of the database				
Request for missing information				

Appendix 5 – Training Process Flow Chart



Appendix 6 – Example of Functions and Responsibilities of AIS personnel

Head of AIS Publications

FUNCTION

To plan, organise, manage, and control the process of receiving or originating, collating, or assembling, editing, formatting, publishing/storing, and distributing the aeronautical information/data concerning the State, through the integrated aeronautical information documentation, with the exception of NOTAMs and pre-flight bulletins.

To apply the necessary procedures and methods to ensure low costs and compliance with the quality requirements of the aeronautical data to be provided, thus ensuring their integrity and contributing to personnel training and motivation with a view to constantly improving professional qualifications.

JOB DESCRIPTION

a) To comply with the national standards and regulations that will ensure the effective operation of the aeronautical information in the area of publications.

b) To check and control the quality of the aeronautical data in the publications and aeronautical charts, according to the established quality requirements.

c) To check and control the quality of the information contained in the elements of the integrated AIS documentation.

d) To validate the information to be published in the integrated documentation prior to its certification by the aeronautical authority.

e) To maintain a close relationship with raw data providers and mapping entities, the NOTAM office, and aerodrome AIS units.

f) To apply and control the quality processes and procedures implemented in the area, and to assess their efficacy.

g) To control the continuous updating of the relevant elements of the integrated documentation and the aeronautical charts.

h) To ensure and control the permanent updating of AIS/MAP database and the AIS website.

i) To ensure that the integrated documentation of other States is keep up to date.

j) To supervise and control the packaging and delivery for the distribution of aeronautical information.

k) To update the user database where the State exchange is recorded and controlled.

l) To ensure that an efficient advisory and consultation service on the integrated documentation is provided.

m) To apply the whole registration system to ensure the traceability of the aeronautical information/data.

n) To promote the marketing of AIS/MAP products and provide accounting and financial statements, preparing statistical reports of the publications.

o) To instruct the staff under his/her responsibility about work methods, and to respond to

consultations and to solve problems that may arise, and to provide guidance on task performance.

p) To propose and organise training activities on individual and collective requirements for the personnel.

q) To ensure that the staff conduct their activities according to the respective functions and work contents.

r) To issue the necessary instructions for ensuring service and compliance with existing legislation.

s) To prepare detailed technical reports on the activities carried out, and keep the boss informed about his/her levels of management.

t) To assess the performance of the personnel under his/her responsibility.

u) To secure the necessary inputs and means for the good operation of the office.

RESPONSIBILITY

To respond for the provision of quality aeronautical information/data published in the AIP, AIP Supplement, and aeronautical information circulars, as well as for the maintenance and constant updating of AIS/MAP database, the updating of the integrated documentation of other States, and the implementation of the established quality processes and procedures, including the respective verification and validation activities.

REQUIREMENTS

a) To have approved the AIS/021 basic course

b) To demonstrate suitability, skills and capacity

c) To have a higher level of schooling

d) Proficiency in the English language, Operational Level 4

e) Three years of experience in an AIS/MAP office

Head of Aeronautical Mapping

FUNCTION

To plan, organise, manage, and control the process of receiving or originating, collating or assembling, editing, formatting, storing the aeronautical information/data concerning State aeronautical mapping. To apply the necessary procedures and methods in order to ensure low costs and compliance with the quality requirements of the aeronautical data to be provided, ensuring their integrity, and promote the training and motivation of staff for continuous improvement of professional qualifications.

JOB DESCRIPTION

a) To comply with the national standards and regulations that will ensure the effective operation of the aeronautical information service in the area of aeronautical mapping.

b) To check and control the quality of aeronautical data in the aeronautical charts, according to defined quality requirements.

c) To check and control the quality of the information contained in aeronautical charts.

d) To maintain a close relationship with raw data providers and mapping agencies, the AIS publications office, the NOTAM office, and aerodrome AIS units.

e) To apply and control the quality processes and procedures implemented in the area, and to assess their efficacy.

f) To control the constant updating of the relevant elements in aeronautical charts.

g) To make sure that an efficient mapping information advisory and consultation service is provided.

h) To apply the whole registration system to ensure the traceability of aeronautical information/data.

i) To instruct the staff under his/her responsibility on the work methods, and to answer queries and solve any problems that may arise, providing guidance on the performance of tasks.

j) To propose and analyse staff training activities based on individual and collective needs.

k) To make sure that the staff under his/her responsibility conduct their activities according to their functions and work contents.

l) To issue the necessary instructions to ensure the service and compliance with current legislation.

m) To prepare detailed technical reports on the activities carried out and to keep the boss informed about his/her levels of management.

n) To assess the performance of the staff under his/her responsibility.

0) To secure the necessary inputs and media for the good operation of the office.

RESPONSIBILITY

To provide mapping information, maintain and keep the mapping database updated, and implement the established quality processes and procedures, including the respective verification and validation activities.

REQUIREMENTS

a) To have approved the AIS/021 basic course

b) To demonstrate suitability, skills and capacity

c) To have higher education, with emphasis in geodetics, geography or related areas

d) Proficiency in the English language, pre-operational Level 3.

e) Three years of experience in an AIS/MAP office

Head of the International NOTAM Office

FUNCTION

To plan, organise, manage, and control the reception, collation or assembly, formatting, publication/storage and distribution of State aeronautical information/data through national and international NOTAMs. To apply the necessary procedures and methods to ensure compliance with quality requirements concerning the aeronautical data to be provided, thus ensuring their integrity, and to promote the training and motivation of staff with a view to constantly improving professional qualifications.

JOB DESCRIPTION

a) To comply with the national standards and regulations that will ensure the effective operation of the aeronautical information service in the area of NOTAMs.

b) To check and validate the raw aeronautical information/data received from the originating NOFs for the issuance of the respective NOTAMs.

c) To check and control the quality of the data to be published in the NOTAMs, regarding the area of responsibility of the State.

d) To control the NOTAM distribution process and the respective checklists, according to the series.

e) To maintain strict control of national and foreign NOTAMs that feed the databases.

f) To maintain a direct and efficient link with related technical services responsible for providing raw data, the directors of the aeronautical authority, the AIS publications and mapping office, and other aerodrome units, for the processing, updating, provision, and transmission of NOTAM information, establishing operational letters for improving coordination between units.

g) To control the updating and operation of the NOTAM database.

h) To provide advisory and consultation services to the staff of aeronautical administrations.

i) To control and ensure the retransmission of navigation advisory NOTAMs to military and other entities that so require.

j) To apply the quality procedures implemented in the Office to each of the established activities and processes, and assess their efficiency.

k) To enforce the filing and statistical parameters of the Office.

l) To ensure compliance with quality indicators and acceptance criteria, reflecting them in the established records.

m) To manage the inputs, equipment and documents necessary to ensure the ongoing operation of the Office.

n) To give advice to pilots and technical staff on the fulfilment of their functions in their area of expertise.

o) To instruct the staff under his/her responsibility on work methods, and to respond queries and solve any problems that may arise, providing guidance on the fulfilment of tasks.

p) To propose and analyse staff training activities based on individual and collective needs.

q) To make sure that the staff under his/her responsibility carry out their activities according to the respective functions and work contents.

r) To issue the necessary instructions to ensure the service and compliance with the existing legislation.

s) To prepare detailed technical reports on the activities carried out and to keep the boss informed of his/her levels of management.

t) To assess the performance of the staff under his/her responsibility.

RESPONSIBILITY

To respond for the provision and quality of State NOTAM information, and for the maintenance and constant updating of the NOTAM database; the updating of the integrated documentation of other States; and the application of the established quality processes and procedures, including the respective verification and validation activities.

REQUIREMENTS

a) To have approved the AIS/021 basic course

b) To demonstrate suitability, skills and capacity

c) To have higher education

d) Proficiency in the English language, pre-operational Level 4

Aerodrome AIS Unit

FUNCTION

To plan, organise, manage, and control the selection, production, formatting, and distribution of pre-flight information bulletins (PIB) concerning his/her area of responsibility. To apply and require the application of the necessary procedures and methods to ensure compliance with the quality requirements of the aeronautical data to be provided, thus ensuring their integrity. To control and ensure the quality of PIB data, promoting the training and motivation of staff with a view to constantly improving professional qualifications. If necessary, to ensure the processing of the flight plans (FPS) of the operators and manage the integration of AIS and MET databases in order to provide pre-flight information service.

JOB DESCRIPTION

a) To comply with the national standards and regulations that will ensure the effective operation of the pre- and post-flight information service by aerodrome AIS units.

b) To check and validate the raw aeronautical information/data received from the originators for the generation of the corresponding requests for the issuance of NOTAMs concerning the aerodrome and its surroundings.

c) To check and control the quality of PIB data.

d) To monitor FPL processing and related messages.

e) To maintain strict control of national and foreign NOTAMs issued regarding his/her area of responsibility.

f) To maintain a direct and efficient link with related aerodrome technical services responsible for providing raw data, the directors of the aeronautical authority, the AIS publications and mapping office, and other aerodrome units, for the verification, validation, updating, and distribution of information, establishing operational letters for improving coordination between units.

g) To control the operation of the integrated database in order to facilitate self-briefing of operators.

h) To provide advisory and consultation services to flight operations personnel.

i) To apply the quality procedures established in the Office to each of the activities and processes defined, and assess their efficacy.

j) To apply the filing and statistical parameters of the unit.

k) To ensure compliance with quality indicators and acceptance criteria, reflecting them in the established records.

l) To manage the inputs, equipment and documents required for ensuring the uninterrupted operation of the Office.

m) To provide advice to pilots and technical staff on the fulfilment of their functions in relation to their area of expertise.

n) To instruct the staff under his/her responsibility on work methods, and to respond queries and solve any problems that may arise, providing guidance on the fulfilment of tasks.

o) To propose and analyse staff training activities based on individual and collective needs.

p) To make sure that the staff under his/her responsibility conduct their activities according to the respective functions and work contents.

q) To issue the necessary instructions to ensure the service and compliance with existing legislation.

r) To prepare detailed technical reports on the activities carried out and to keep the boss informed of his/her levels of management.

s) To assess the performance of the staff under his/her responsibility.

RESPONSABILITY

It is accountable for the provision of the pre- and post- flight information service concerning its area of coverage within and outside of the State; the updating of the integrated national and foreign documentation; and the application of the established quality processes and procedures, including the respective verification and validation activities.

REQUIREMENTS

a) To have approved the AIS/021 basic course

b) To demonstrate suitability, skills and capacity

c) To have higher education

d) Proficiency in the English language, operational Level 4

AIS/MAP expert

The AIS/MAP expert can be considered as a position by appointment, to be filled by staff with AIS/MAP experience, basically on the specific area. The AIS/MAP expert can obtain this category after approving a in AIS/MAP specialisation course. Its main functions include supervision and control, support to the head of the unit, who delegates in the expert the technical activities related to the verification, validation and control of all the operational aspects that have a direct impact on the product or service.

The AIS/MAP expert is trained and has the skills to also fulfil the functions of the AIS/MAP technician. In the units operating 24 hours a day, the AIS/MAP expert can act as shift supervisor, depending on the structure of the unit.

FUNCTION

To supervise and control the effective compliance with each of the functional stages of the aeronautical information service in the respective units; to manage work groups and projects within the AIS/MAP organisation, with a view to the gradual implementation of technological developments; to apply the necessary procedures and methods to ensure low costs and compliance with the quality requirements of the aeronautical data to be provided, with the respective verification and validation activities.

JOB DESCRIPTION

a) To supervise and coordinate the activities related to the registration, updating, analysis, preparation, and dissemination of aeronautical information/data carried out by his/her staff.

b) To apply the standards, regulations, and procedures governing the provision of aeronautical information and mapping services.

c) To supervise and validate the verification activities carried out by the staff under his/her responsibility before developing the elements of the integrated documentation and aeronautical charts.

d) To supervise and verify the quality of the aeronautical data provided and to inform the head of the unit or the originators about any anomalies identified.

e) To supervise and control the constant updating of AIS/MAP databases.

f) To apply work methods, together with his/her staff, and to solve the problems that may arise, providing the respective guidance.

g) To participate in work and research committees with a view to assessing and coordinating aspects related to the functions of the unit.

h) To provide training in the relevant areas for the staff under his/her responsibility.

i) To prepare detailed technical reports on the activities carried out, and to keep the boss informed about his/her levels of management.

j) To assist and stand in for the head of the unit in the fulfilment of his/her tasks and to represent him/her as necessary.

k) To perform tasks related to AIS/MAP activities and processes as necessary.

RESPONSIBILITY

Is responsible for supervising and controlling the provision of quality aeronautical information/data published in the AIS integrated documentation and aeronautical charts, and for the application and control of the implemented quality processes and procedures, and the relevant verification and validation activities in the AIS/MAP functional areas.

REQUIREMENTS

a) To have approved the AIS/021 basic course

b) To have at least two years of AIS/MAP experience

c) To have medium- or higher-level education

d) Proficiency in the English language, operational Level 4

AIS/MAP Technician

The AIS/MAP technician provides the aeronautical information service within the AIS process. Each organisation, depending on its structure, must have sufficient technical personnel to ensure uninterrupted service, paying special attention to the training and requalification of such personnel. In aeronautical information management within a fully automated environment, where information is exchanged and provided in real time and with a high level of integrity, aeronautical data are verified and validated by all the AIS/MAP staff indistinctly, and the AIS/MAP technician is considered a key element in this chain.

The AIS/MAP technician must have the same training and preparation as the AIS/MAP expert, the only difference being the years of experience and the delegation of responsibilities by the head of the unit. In the ATM operational environment, all the staff must have the highest level of knowledge and skill; consequently, the establishment of several levels of subordination, based on functions and tasks, is not the ideal situation.

FUNCTION

To effectively implement each of the functional stages of the aeronautical information service in the respective units; to participate in AIS/MAP work groups and projects to ensure the gradual implementation of technological developments; to apply the necessary procedures and methods to ensure compliance with the quality requirements of the aeronautical data to be provided, with the respective verification and validation activities.

JOB DESCRIPTION

a) To record, update, analyse, prepare, and disseminate aeronautical information/data through the AIS integrated documentation package.

b) To apply the standards, regulations, and procedures governing the provision of aeronautical information and mapping services.

c) To perform his/her functions applying the quality procedures implemented in the unit.

d) To verify the quality of the aeronautical data provided and to inform the head of the unit or the originators about any anomalies identified.

e) To manage the AIS/MAP database, ensuring the constant updating of stored data for retrieval and subsequent use.

f) To solve the problems that may arise, applying the respective work methods and indications.

g) To participate in work and research committees with a view to assessing and coordinating aspects concerning the operation of the unit.

h) To provide efficient aeronautical information advisory and consultation services to aeronautical authorities and flight operations personnel.

i) To participate in the training activities planned in his/her area in order to increase his/her technical and professional level based on technological developments.

j) To carry out and record complex tasks, keeping the boss informed about his/her levels of management.

k) To apply coordinated initiatives, in order to improve the quality of the service provided.

l) To perform tasks related to AIS/MAP activities and processes, as required.

RESPONSIBILITY

Is accountable for the reception, editing, formatting, publication/storage, and distribution of aeronautical information/data about the territory of the State, up to the boundaries of the corresponding flight information region. Verifies and controls the aeronautical data provided and manages them in such a way that they are promptly available to flight operations personnel and air traffic services, with the required quality and integrity. Applies the quality processes and procedures implemented in each of the AIS/MAP functional areas.

REQUIREMENTS

a) To have approved the AIS/021 basic course

c) To have medium- or higher-level education

d) Proficiency in the English language, pre-operational Level 3 (operational level 4 if working in an aerodrome AIS unit)

Appendix 7 – Example of competencies of AIS personnel

Competence is an "outstanding characteristic of an individual, which results in an effective and/or superior performance at work" (Boyzatis 1982).

An individual that has and uses the appropriate competencies will be competent at work.

Competence	Definition
Critical analysis	To protect the data/documents and identify the significant elements in order to detect any anomalies or inconsistencies. To take into account all the relevant details and information. To ensure that the information is consistent with procedures and instructions. To verify and correct the information before releasing it.
Analysis of information	To accede to, and assess information using the appropriate logical analysis techniques. To provide additional explanatory details, if necessary. To observe, identify, and understand the actual requirements.
Operational knowledge	To demonstrate thorough, systematic, and expert knowledge of systems and procedures. To understand how AIS processes are interrelated. To keep abreast of changes in systems and procedures.
Professional expertise	To show technical or professional knowledge and work-related skills. To maintain his/her professional and technical knowledge and skills in the specialised areas. To actively keep abreast with the best practices in the industry/profession.
Compliance with procedures	To comply with institutional procedures and policies. To follow verbal or written instructions.
Safety culture	To understand potential risk factors, and take action to minimise them. To make efficient and safe use of materials and equipment. To avoid self-exposure or exposing others to the risk of an accident.
ATC safety awareness	To be aware of ATC-related risks. To know the safety system and to apply it. To promote safety and make sure that personal attitudes will never compromise safety.
Language skills	To have a very good knowledge of spoken, grammar and written language. To be able to communicate in the local language and in English, using the appropriate vocabulary.
Judgment and decision-making	To make rational and realistic decisions, taking into account all facts and available alternatives.
Reliability	Consistency and dependability. To deliver what has been agreed upon, in a timely and conscientious

	manner.
Precision	Is meticulous, conscientious and precise, paying attention to the details of systematic control.
Methodical	Is methodical and rigorous. Shows perseverance in routine tasks.
Selective attention	Capable of focusing on a task for a given period of time, without being distracted.
Quality approach	Is committed to attaining high-quality work standards, even when working under pressure. Participates in the identification of process improvements to enhance the quality of the work/service provided.
Customer focus	Tries to provide a prompt and efficient service to both internal and external customers. Has interest in, and seeks to identify customer requirements in a precise manner.