2.4 COMPETENCIES

Introduction

2.4.1 ICAO has developed the general principles and procedures to be followed in the design and implementation of a competency-based approach to training and assessment with the intention to cover all aviation disciplines to ensure that qualified and competent personnel support the air transportation system. This was covered by amendment 5 to the PANS-TRG (Doc 9868) and includes the concept of an ICAO competency framework intended to support the development and implementation of competency-based training and assessment for aviation professionals.

2.4.2 The competency-based training envisages a system of competency measurement, which looks at the total performance across a wide range of activities, rather than looking at specific tasks.

2.4.3 The ICAO competency framework identifies the competencies required for a specific aviation discipline with the associated description and observable behaviours for performing the professional tasks. The goal is to define no more than ten competencies for each aviation discipline.

The following table illustrates the structure of an ICAO competency framework.

<table>
<thead>
<tr>
<th>ICAO competency</th>
<th>Description</th>
<th>Observable behaviour (OB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAO Competency 1</td>
<td>Description 1</td>
<td>OB 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB n</td>
</tr>
<tr>
<td>ICAO Competency 2</td>
<td>Description 2</td>
<td>OB 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB n</td>
</tr>
<tr>
<td>ICAO Competency n</td>
<td>Description n</td>
<td>OB 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OB n</td>
</tr>
</tbody>
</table>

2.4.4 Competencies are defined for each aviation function, profession or role (i.e. discipline) and applied to the individual. Aviation professionals apply the same set of competencies in a given discipline throughout their career (e.g. private, commercial, multi-crew and airline transport pilots will demonstrate the same set of competencies but with different degrees of performance).

2.4.5 In the ICAO Competency Framework competencies are formulated in a way that ensures they can be trained for, observed and assessed consistently in a wide variety of work contexts for a given aviation discipline. To be considered competent, an individual aviation professional demonstrates an integrated performance of all the required competencies to a specified standard. Evidence of competent performance needs to be valid and reliable.

*Note.— The AIS competency framework is aligned with amendment 5 to the PANS-TRG (Doc 9868) and other ICAO competency frameworks developed to date.*

AIS Competency Framework
The AIS competency framework is provided by ICAO to assist State authorities, AIS management and AIS training organizations to develop and implement competency-based training and assessment for AIS professionals.

The AIS competency framework provides a generic set of competencies required for performing AIS tasks. The AIS competencies are formulated in a way that ensures they can be trained for, observed and assessed consistently in a wide variety of work contexts.

The AIS competency framework takes into account the evolution of the AIS domain from a non-automated, paper based environment to an automated, data-driven environment supporting the integration of aeronautical information into the future SWIM enabled ATM environment.

Based on selected competencies AIS personnel in AIS organizations around the world not only perform AIS tasks but also perform other information related tasks associated to other air navigation functions such as the handling of flight plans for the ATS Reporting Office (ARO) function.

The AIS competency framework lists the competencies required for AIS together with associated descriptions and observable behaviours for performing these. As these competencies cover AIS in automated or non-automated information environments, management can efficiently align and adapt the required competency-based training and assessment for AIS professionals to the changing environment.

For the AIS competency framework eight competencies have been identified which cover competencies required for legacy as well as the future information environment. A number of the competencies are also relevant for other aviation professionals. Some competencies are specific for the AIS professional such as:

a) Information awareness: the competence to comprehend information requirements, to monitor the information flow and to detect anomalies and potential threats that can degrade the flow and the quality of information and affect its use; and

b) Information management expertise: the competence to apply and improve technical knowledge and skills related to the collection, management and integration of aeronautical data and provision of aeronautical information.

The competencies for AIS are described in the AIS Competency Framework which is provided in Appendix 1 of Volume 1.

Application of the AIS Competency Framework

Within the context of the established quality management system in AIS, management has to ensure that AIS tasks be performed only by those competent to do so, leading to a need to identify tasks and to assess the competencies required. Clear performance criteria need to be established for assessing the competence. Assessment shall be based on multiple observations across multiple contexts.

In this context management has to ensure that required competencies are trained, observed and assessed consistently within the AIS organisation. Each stakeholder in the process including the trainee, instructor, training organization, operator and regulator has a common understanding of the AIS competency requirements.

In a first step all main functions, roles or tasks performed in a specific AIS organisation shall be identified. In many AIS organisations around the world additional tasks are performed by AIS personnel. It is important to also identify and describe these additional tasks, e.g. tasks related to the ARO function, to describe all tasks performed. Many of these tasks, which are delegated to AIS, rely on AIS competencies.

If such tasks are delegated to AIS it is recommended to formalize the delegation to ensure that the required competencies are trained and assessed accordingly. AIS management shall ensure that appropriate agreements are established with the responsible service units, e.g. Air Traffic Service (ATS) unit to ensure that the required competencies are trained, achieved and assessed accordingly.

Once all the tasks performed by an AIS function are identified a clear process can be followed to develop an adapted competency model meeting the requirements of the specific AIS organisation. The components of an adapted competency model are:
a) the competencies that are required to be achieved by the end of training; and

b) the combination of observable behaviors, conditions and standards used to judge whether the required performance has been achieved.

The process for determining the adapted competency model can be described as follows:

a) Select the relevant competencies.

b) Select and, if necessary, adapt observable behaviours relevant to the functions performed.

c) Determine the relevant competency standards.

d) Determine the conditions under which the competencies need to be performed.

The combination of observable behaviours, conditions and standards are used to judge whether the required performance has been achieved.

The following table illustrates the structure of the adapted competency model.

**Table 2-2. Elements of an adapted competency model**

<table>
<thead>
<tr>
<th>Adapted competency</th>
<th>Description</th>
<th>Observable behaviour (OB)</th>
<th>Competency assessment</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapted competency 1</td>
<td>Description 1</td>
<td>OB 1, OB 2, OB x</td>
<td>Final competency standard</td>
<td>Conditions</td>
</tr>
<tr>
<td>Adapted competency 2</td>
<td>Description 2</td>
<td>OB 1, OB 2, OB x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adapted competency x</td>
<td>Description x</td>
<td>OB 1, OB 2, OB x</td>
<td></td>
<td></td>
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</tbody>
</table>

The adapted competency model consists of a group of competencies with their associated description, and performance criteria adapted from the ICAO competency framework that an organization uses to develop competency-based training and assessment for a given role.

2.4.17 To ensure that the required competencies are achieved AIS management and AIS training organizations need to develop and implement competency-based training and assessment for AIS personnel. This is achieved by establishing a training plan which describes how the required competencies are achieved and also establish an assessment plan for gathering valid and reliable evidence during training.

*Commented [LR3]: select...from the ICAO AIS Competency Framework*