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CANSO Standard of Excellence in Human Performance Management

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Contents

Introduction	Page 4
Building a Human Performance Management Programme	Page 5
Excellence in Human Performance Management	Page 8
Implementing a Human Performance Management Programme	Page 9
How to Assess Maturity in Human Performance Management	Page 10
Managing a Human Performance Management Programme	Page 12
Conclusion	Page 12
Appendix	Page 13

Introduction

The *CANSO Standard of Excellence in Human Performance Management* helps air navigation service providers (ANSPs) assess, develop and improve their human performance management. It is based on a human factors white paper

developed by EUROCONTROL, FAA and CANSO Members, and is in line with the *CANSO Standard of Excellence in Safety Management Systems*.

Why is a human performance management programme necessary?

To deliver a safe, efficient and effective air traffic management (ATM), it is essential that controllers, maintainers and others operate at an optimal level of performance. It is people that control aircraft, it is people that maintain equipment and it is people that create safety. Good human performance is therefore required to deliver good air traffic control.

The ATM system is interactive and complex, operating in a continually changing environment. At a time when new technology and procedures are being introduced with greater reliance on automation, a high level of performance from the humans in the system has never been so important. To keep the system safe, efficient and effective, adaptation and flexibility are necessary. It is the people in the system that provide this resilience.

Traditionally, the focus of human performance has been on, for example, incident investigation, recruitment, training or equipment design. Each of these has been addressed by different departments within an organisation. While this isolated approach continues to deliver good human performance, it is also important that all areas that contribute to human performance are managed at a programme level, in an integrated manner. This is because each area is connected and this connection needs to be managed.



Building a Human Performance Management Programme

Which elements should a Human Performance Management programme contain?

Traditional performance areas such as selection, training, wellbeing and teamwork are all important to the provision of a safe, efficient and effective ATM. However, areas such as the design of the tools and equipment, procedures used, and leadership within the operations room are also important. As

a result of reviewing best practice within ATM and across other safety-related industries, 12 elements of human performance have been identified and addressed by the *CANSO Standard of Excellence in Human Performance Management*.



Figure 1: The 12 elements of the *CANSO Standard of Excellence in Human Performance Management*.

On which elements should a Human Performance Management programme focus?

For a human performance management programme to be effective, the importance and benefits arising from good human performance have to be recognised at the highest levels in the organisation. The organisation has to recognise that people create safety and that people provide resilience, adaptability and flexibility.

To be successful, a human performance management programme has to be embedded within and support the organisation's policies and strategies, and the appropriate focus and resources have to be provided. Policy, strategy and resources (shown in Figure 1) are therefore a necessary enabler for the provision of good human performance. The objective of this element is as follows:



Policy, Strategy and Resources

To establish a human performance management system which supports the achievement of the organisation's goals

With this in place, focus can then be put on the next 10 elements of human performance, the key interlinking pieces of the framework. These are:



Health and Wellbeing

To facilitate good physical and mental health and wellbeing of staff across the organisation



Air Traffic Management (ATM) Equipment and Support Tools

To manage human performance requirements during the design, implementation and operation of ATM equipment and support tools



Operational Procedures

To manage human performance requirements during the design, implementation and application of operational procedures



Teamwork and Communication

To have an effective exchange of information and safety awareness through teamwork and communication



Operational Training

To ensure that human performance aspects are incorporated into the design, content and delivery of operational training



Selection

To ensure that selection incorporates both current and future human performance requirements



Impact of Change

To identify, analyse and manage the impact of change on human performance



Leadership

To drive human performance throughout the organisation through ownership, direction and implementation



Roles and Responsibilities

To ensure that roles are defined and responsibilities are fulfilled with respect to human performance management



Human Performance Investigation and Learning

To identify strengths and weakness related to human performance. To share and implement lessons learnt across the organisation

These 10 elements are likely to be managed by different departments across the organisation. To obtain a high level of human performance, all 10 elements have to be considered and managed in an integrated fashion across the organisation because the different elements have an influence on each other.

For example, when implementing new **ATM equipment and support tools** or new **operational procedures**, the **operational training** of controllers and maintainers needs to be considered. The **impact of the change** on the users and operators also needs to be taken into account. The implementation of the change could result in new or different **roles and responsibilities** and this may require adjustments to be made to the training of current controllers and the **selection** of future controllers who may need different skills. Successful implementation and operation of the change will require good **leadership**. **Investigation and learning** will need to take account of how the new equipment or procedures are being used and this will include consideration of **teamwork and communication**. Finally, the **health and wellbeing** of the controller or maintainer has an impact on their human performance which may be a contributing factor to the incident.

What this illustrates is that all 10 elements are interlinked and the full picture of human performance only emerges when all pieces are in place.

The final foundation element of the human performance management programme is assurance. By managing human performance as a programme rather than as individual elements, this final element ensures that decisionmakers have the assurance that human performance is being managed effectively and delivering business and safety benefits.



Human Performance Management Assurance

To provide assurance that human performance management is effective



Excellence in Human Performance Management

What is a human performance management standard of excellence?

A human performance management standard of excellence sets out the requirements against which an ANSP can assess themselves and, where appropriate, define improvement activities to obtain an increased level of maturity. For the *CANSO Standard of Excellence in Human Performance Management*, this takes into account each of the 12 human performance elements identified.

The levels of maturity in the *CANSO Standard of Excellence in Human Performance Management* are the same as those used in the *CANSO Standard of Excellence in Safety Management Systems*.

The levels of maturity increase from Level A to Level E where each level is described as follows:

- A Level A – Informal Arrangements**
Human performance management processes and/or requirements have not been agreed at the organisation level – they are either not routinely undertaken or depend on the individual assigned the task.
- B Level B – Defined**
Human performance management processes and/or requirements are defined but not yet fully implemented, documented or consistently applied.

- C Level C – Managed**
Human performance management processes and/or requirements meet the required regulatory standards and comply with relevant ICAO Annexes. Human performance management processes and/or requirements are formally documented and consistently applied.

- D Level D – Assured**
Evidence is available to provide confidence that human performance management processes and/or requirements are being applied appropriately and are delivering positive, measured results.

- E Level E – Optimised**
Human performance management processes and/or requirements set international best practice, focusing on innovation and improvement. The effectiveness of the human performance management improvement actions are measured and evaluated against defined improvement criteria.

The Human Performance Management Maturity Scheme is represented in the Figure 2.



Figure 2: Human Performance Management Maturity Scheme

Implementing a Human Performance Management Programme

Managing the 12 elements of the Human Performance Management programme, commonly owned by different parts of the organisation, may require significant effort and co-ordination. The *CANSO Standard of Excellence in Safety Management Systems* is designed to identify key priority elements as a first step and focus implementation activities on these elements. The focus is on identifying areas for improvement that directly benefit the organisation. This will demonstrate value from improving human performance and provides a strong foundation for implementing further actions within your organisation.

It is recommended that **Policy, Strategy and Resources** is considered first. This element sets the foundation for the organisation's human performance management programme and all the other elements are enabled by it. It is important to reach at least Level B of this element as this reflects a maturity level where an ANSP can identify priorities and the resources available. This strategic understanding of human performance enables the development of a plan for establishing a human performance management system.

To identify its priorities for human performance, an organisation should then consider the next 10 elements. Each organisation will need to decide which of these 10 elements to focus on first and this will depend on:

- a) what it already has in place
- b) what resources it has available
- c) the priorities within the business

Starting with a small number of elements first is more beneficial than trying to address all 10 at the same time. Nevertheless, in the mid-term, it is important that all 10 elements are considered because of the interdependencies between them. Improving one element can only go so far without consideration of the other elements that interact with it.

If an organisation is unsure about where to start, it is suggested that the two elements of **ATM Equipment and Support Tools**, and **Human Performance Investigation and Learning** are a good starting point. Addressing the former is a proactive way to improve human performance while the latter provides a better understanding of current human performance and where improvements are needed.

An organisation should try to achieve at least Level B for each of the 10 elements rather than increasing some elements to a higher level while leaving others at Level A. This will provide a balanced approach to human performance management. Once the organisation has confidence that robust plans are in place to achieve Level B for all 10 elements, attention can then also be directed at achieving Level C for some.

If assessment shows that an organisation is already at Level C or above for some elements, maintenance of these levels should be achieved while the focus is on increasing the levels for the other elements.

The **Human Performance Management Assurance** element brings together the 10 elements and their inter-relationships to provide assurance of the human performance management programme as a whole.

In line with the recommended target for the *CANSO Standard of Excellence in Safety Management Systems*, it is suggested that an organisation should target achievement of at least Level C for each element in the *CANSO Standard of Excellence in Human Performance Management*. At Level C, it is considered that human performance is being actively managed in a consistent manner across the organisation.

A number of terms are used within the Standard. The appendix at the end of this document provides definitions of generic terms which are used across multiple elements, and specific terms which are used within single or small numbers of elements.

How to Assess Maturity in Human Performance Management?

The format of each element within the *CANSO Standard of Excellence in Human Performance Management* is structured using the layout shown in the example below.

1. Policy, Strategy, Resources		
Objective	To establish a Human Performance Management system which supports the achievement of the organisation's goals	
Level	Capability Statement	Assessment Question
A Informal Arrangements	There is no recognition of the importance of human performance management in achieving the organisation's goals.	
B Defined	There is recognition that human performance management will bring benefit	Is there recognition that human performance management will bring benefit?
	Plans are in place to set up a human performance management system	Are plans in place to set up a human performance management system?
	Plans are in place to set target levels of maturity for each of the elements within the human performance management system	Are plans in place to set target levels of maturity for each of the elements within the human performance management system?
C Managed	There is a human performance management policy	Is there a policy for human performance management?
	There is a human performance management strategy	Is there a strategy for human performance management?
	The target levels to be achieved for each element are agreed at the appropriate level	Are the target levels to be achieved for each element agreed at the appropriate level?
	There is a procedure in place that manages the interrelationships between different elements	Is there a procedure in place that manages the interrelationships between different elements?
	A person is identified with a clear responsibility for the human performance management system	Is a person identified with a clear responsibility for the human performance management system?
	The responsible person has a budget and programme for human performance management	Does the responsible person have a budget and programme for human performance management?
	Appropriate resources are provided to undertake the programme	Are appropriate resources provided to undertake the programme?
D Assured	A human performance management system is implemented according to the policy and strategy	Is a human performance management system implemented according to the policy and strategy?
	Performance indicators are used to assess the effectiveness of the human performance management system	Are performance indicators used to assess the effectiveness of the human performance management system?
	Based on performance indicators, priorities for improvements to the human performance management system are identified, documented and acted upon	Based on performance indicators, are priorities for improvements to the human performance management system identified, documented and acted upon?
	Appropriate expertise, including Human Factors capability, is deployed in a way that is tailored and proportionate to the size and complexity of the organisation	Is appropriate expertise, including human factors capability, deployed in a way that is tailored and proportionate to the size and complexity of the organisation?
	Resources are continually available to fulfil the goals of the human performance management strategy	Are resources continually available to fulfil the goals of the human performance management strategy?
E Optimised	The availability of a human performance management system supports the achievement of the organisation's business goals	Does the availability of a human performance management system support the achievement of the organisation's goals?
	The human performance management system supports the organisation's long term strategy	Does the human performance management system support the organisation's long term strategy?
	The effectiveness of actions implemented for improving the human performance management system is measured and evaluated	Is the effectiveness of actions implemented for improving the human performance management system measured and evaluated?
	The knowledge gained for each element is incorporated into the other human performance management elements	Is the knowledge gained for each element incorporated into the other human performance management elements?
	The organisation learns about human performance management from external stakeholders and other industries	Does the organisation learn about human performance management from external stakeholders and other industries?
	The organisation actively participates in developing industry best practices in human performance management	Does the organisation actively participate in developing industry best practice in human performance management?

Each element starts with an objective which describes what the element is in support of. The five levels of maturity are then shown down the left hand side from *A: Informal Arrangements* through to *E: Optimised*. Against each level of maturity there are a series of capability statements which describe what will be in place once an organisation reaches a particular level of maturity.

All organisations start at *Level A: Informal Arrangements* and, as they become more mature, progress to *Level B: Defined* and then on to higher levels of maturity as decided by the organisation. For each level of maturity, the capability statements are turned into assessment questions. There are no questions at *Level A: Informal Arrangements* because this is the base level from which all organisations start.

An organisation should consider the assessment questions in turn for *Level B: Defined* and determine whether they have evidence to be able to answer 'yes' to the questions. In the example above, there are three assessment questions. If an organisation has the evidence to be able to answer 'yes' to all three assessment questions, then the organisation has achieved *Level B: Defined*. If the organisation has the evidence to be able to answer 'yes' to only 0, 1 or 2 of the assessment questions, it remains at *Level A: Informal Arrangements*. Undertaking this assessment informs the organisation of which capability statements it needs to work on (as planned actions) in order to achieve *Level B: Defined*.

The above procedure is then repeated for *Level C: Managed* and in the example above there are eight capability statements to be assessed. Again, if the organisation has the evidence to be able to answer 'yes' to all eight assessment questions, then the organisation had achieved *Level C: Managed*. If the organisation answers 'yes' to less than all eight questions, it remains at *Level B: Defined* but can use the assessment to identify which capability statements it needs to work on in order to achieve *Level C: Managed*.

It is recommended that an organisation goes through all the assessment questions up to *Level E: Optimised*. Experience has shown that it is possible to meet some higher maturity requirements while other lower maturity requirements are not met. This helps in getting a complete map of which requirements are met for any given element which, in turn, can help in determining which element should be prioritised and any associated actions.

Managing a Human Performance Management Programme

Human performance management is often undertaken across a number of different departments within an organisation. It is recommended that one individual is given responsibility for the Human Performance Management programme as a whole, or a joint steering committee is setup to oversee the implementation. If a single individual is identified then some of the elements in the programme may be under their direct control but some may not be. The lead, or steering committee, is, however, responsible for the quality of the human performance outcomes provided by each of the elements and reporting progress against the achievement of the human performance management goals agreed by the organisation. The lead, or steering committee, is also responsible for determining how the different elements of the human performance management programme feed into one another and for providing a co-ordinated overview of human performance management across the organisation.

To achieve human performance benefits, there is a requirement to commit resources, both personnel and financial, to the implementation of the human performance management system. While the number of personnel required will differ depending on the size and complexity of the organisation, organisations benefit from having dedicated human performance professionals who can focus on developing processes and systems appropriate to the organisation, its culture and operation. Resources will also be required to develop awareness in the wider workforce about the impact of the human performance management programme on their work (e.g. wellness, team working, training).

Conclusion

Good human performance is required to deliver good air traffic management. At a time when new technology and procedures are being introduced with a greater reliance on automation, a high level of performance from the humans in the system has never been so important. To keep the system safe, efficient and effective, adaptation and flexibility is necessary. It is the people in the system that provide this resiliency.

The *CANSO Standard of Excellence in Human Performance Management* provides ANSPs with a means for assessing their current level of maturity with respect to human performance management. It can also be used to identify an organisation's priorities for improvement and the actions that should be undertaken.

Support

The *CANSO Standard of Excellence in Human Performance Management* is managed by the CANSO Human Performance Management Workgroup.

If you would like further guidance on implementing the Standard, get in touch: safety@canso.org.



Appendix

The following definitions of generic terms are used within the Standard of Excellence:

- **Human Performance Management Programme** – A set of related activities associated with human performance management which support the achievement of a long term aim.
- **Human Performance Management System** – An organised approach to managing human performance including the necessary organisational structures, accountabilities, policies and procedures. This is equivalent to the safety management system.
- **Systematic** – An organised approach to undertaking an activity which is documented and follows a set plan. Wherever and whenever the activity is undertaken within the organisation, it is undertaken in the same way.
- **Human Performance Aspects** – A consideration of how people do their job, their strengths, capabilities and limitations.
- **Process** – A written description of what wants to be achieved i.e. the end goal. For example, if a loss of separation occurs, the process could be to report it, assess it, investigate it, and produce a report with recommendations.
- **Procedure** – A written description of a series of steps taken in order to achieve an end goal. For example, when investigating a loss of separation, the procedure would set out the steps to be undertaken.
- **Plan** – A detailed proposal for doing or achieving a specific goal. It contains a written description of activities, actions, timescales and the resources needed.
- **Continually** – The activity is carried out on an on-going basis but with intervals of interruption. For example, someone checks their e-mails on a continual basis. This does not mean that they check at a prescribed time each day, or after a prescribed interval. Monitoring of e-mails takes place on an on-going basis but with intervals of interruption.
- **Regularly** – The activity is carried out at a prescribed time, or at a set interval. For example, aviation occurrence reports might be checked every morning at 07:00.
- **Timely** – Happening at the best possible moment, happening with enough time to allow for action to be taken before the change takes effect (Impact of Change)

The following definitions of specific terms are used within the Standard of Excellence:

- **Strategy** – A high level plan of action designed to achieve the major aim of managing human performance. (Policy, Strategy, Resources)
- **Policy** – A set of principles by which the organisation will manage human performance. It normally includes an objective, scope, and clear roles and responsibilities to meet the objective. (Policy, Strategy, Resources)
- **End Users** – The people who actually use, for example, the equipment, tools, procedures and training. (ATM Equipment and Support Tools, Impact of Change)
- **Operational Personnel** – The people who work in the operational environment e.g. controllers, supervisors, watch managers, technicians etc. (Teamwork and Communication)
- **Multi-disciplinary teams** – A team that includes people with different skills and backgrounds. This could be within an organisation or could also include people from outside the organisation. A multi-disciplinary team might include, for example, controllers, engineers, pilots, ground handlers, etc. (Teamwork and Communication)
- **Leaders** – People with defined roles and responsibilities within the organisation to lead. (Leadership)
- **Informal Leaders** – People within the organisation with influence, trust and respect from their colleagues but without a defined role or responsibility to lead. (Leadership)



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