# Building Capabilities via Competency Based Training

Presented at: MSS-WMO Leadership and Management Programme

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National Environment Agency
Safeguard · Nurture · Cherish


hello!
hi!

# SLIDO Activity

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**#3296 010**

**How does your organisation use competencies?**

for staff training only
0%

for overall workforce management including HR, learning and development
0%

we are in the process of adoption and implementation
0%

we do not use competencies, yet!
0%

# SLIDO Activity

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**What are 3 words that describe your experience with competencies, either using or implementing them within your organisation?**

## Segment format

1. Organisational Capabilities
2. ABC’s of Competency
3. Competency-based Training
   - Identify Competency Requirements
   - Performance Gap and Learning Needs Analysis
   - Learning Intervention Design, Development and Implementation
4. Q&A

# 1 Organisational Capabilities

# What are Organisational Capabilities?

*Definition*

"Organisational capabilities are the abilities of an organisation to **operate its day-to-day business** as well as to **grow, adapt, and seek competitive advantage in the marketplace.**"

*Deloitte (2015)*

Individual skills or competencies may be important building block but on its own does not constitute organisational capability

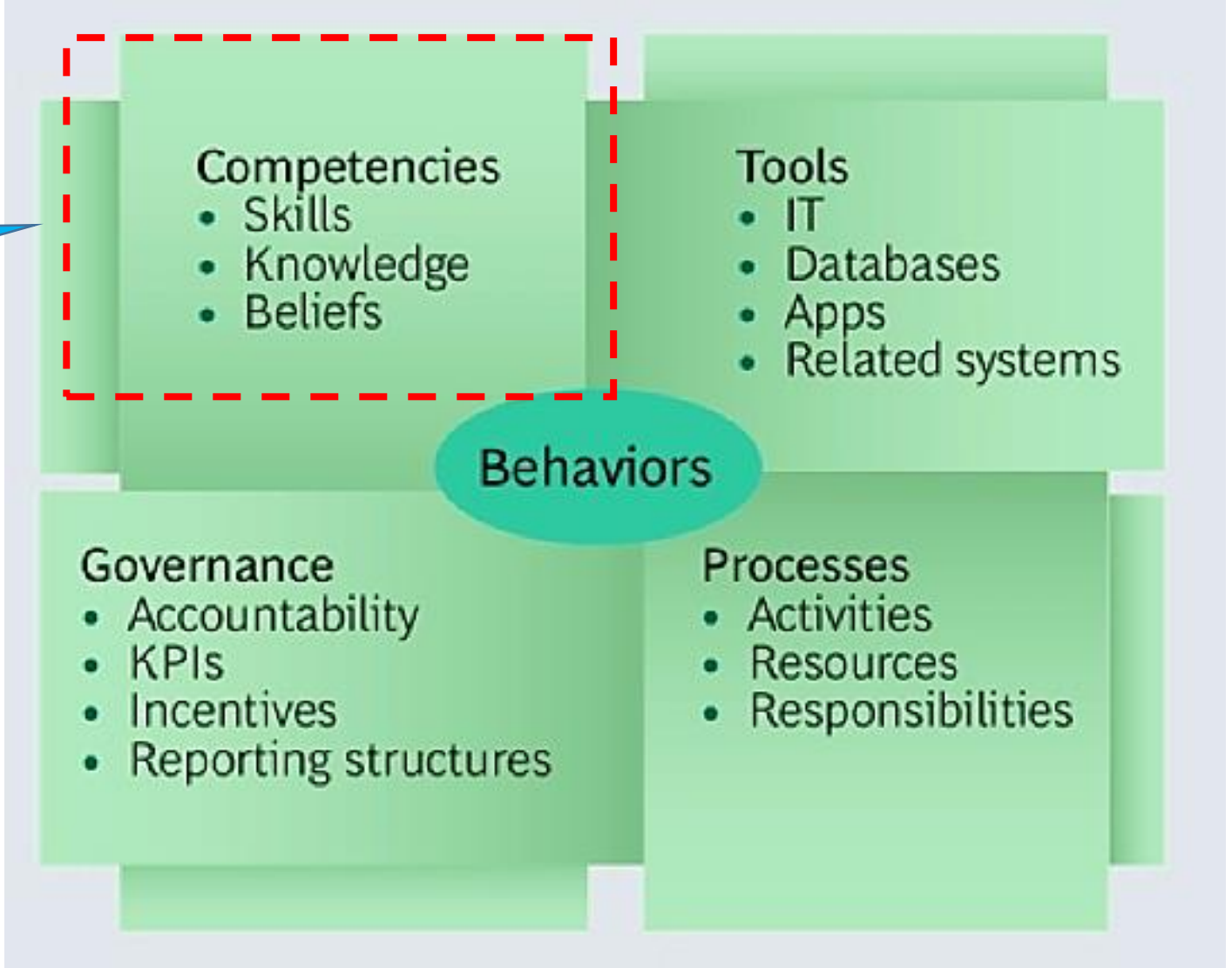

Technology, though important, on its own does not constitute an organisational capability

**Organisational capability** represents the ways that **people, process, technology,** and **resources** are brought together to accomplish work.

# Components of Capability

Today's focus - People

*"Organisational capabilities emerge when an organisation delivers on the combined competencies and abilities of its individuals. They enable a company to turn its technical know-how into results."*




Boston Consulting Group, 2016

# 2 ABC’s of Competency

# Definition of a Competency

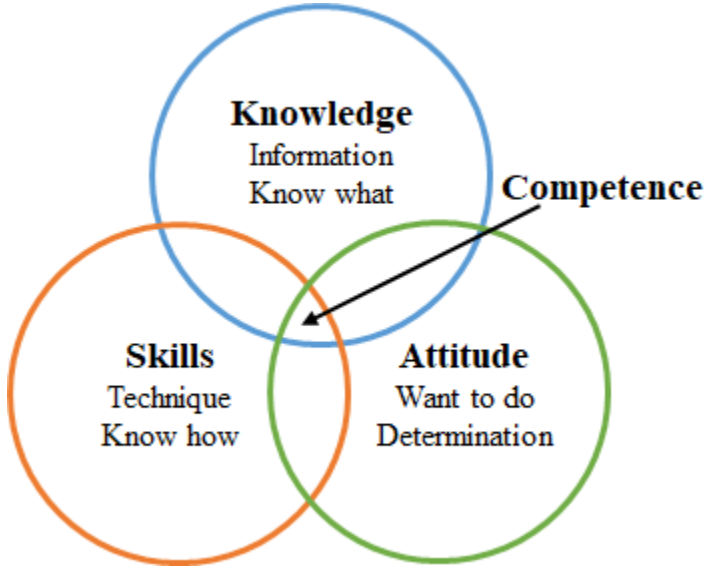
**“the ability to do something successfully or efficiently.”** – Oxford Dictionary

**“a measurable set of knowledge, skills, and attitudes that a person needs to perform a task effectively.”** – Singapore Workforce Skills Qualifications (WSQ) Framework

**"Observable behaviours that lead to effective performance and contribute to organisational goals“** – Singapore Public Service Division

**"Observable abilities, skills, knowledge, motivations or traits defined in terms of behaviours needed for successful job performance“** – CompetencyCore™ Guide to Designing a Competency-based Talent Management Framework

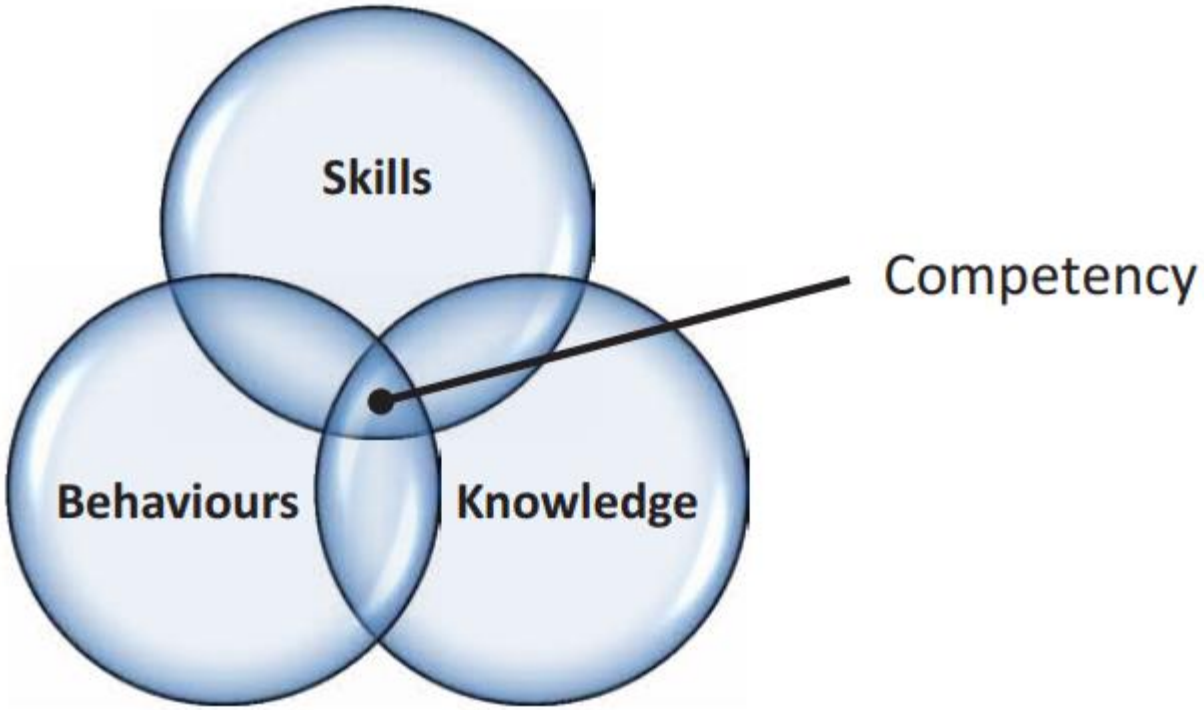
**“Competencies are the knowledge, skills, abilities, and behaviors that contribute to individual and organizational performance.”** – US Department of Health & Human Services



Source: Google search on Worldwide Web

# WMO's Definition of a Competency




**Competency is a combination of skills, knowledge and behaviours required to perform specific tasks in the fulfilment of a job responsibility**
**-** Technical Regulations, Volume I (WMO-No.49)

# Focus on components that can be identified and managed


- Observable
- Easy to identify, train, and manage

- Usually innate/intrinsic
- Difficult to identify, train, and manage

# Competency Naming/Labelling

Organisations may name competencies in a simple/compound noun format or in a phrase/sentence/statement format

| Organisation A | Organisation B |
|---|---|
| Service Delivery | Serve with heart and passion |
| Communication | Communicate with internal and external audience |
| Stakeholder Relationship Management | Develop and management relationships with users and other stakeholders |
| Meteorological Observations and Monitoring | Monitor continually the evolving meteorological and hydrological situation, updated forecasts and warnings and the impact of anticipated conditions |

# Types of Competencies

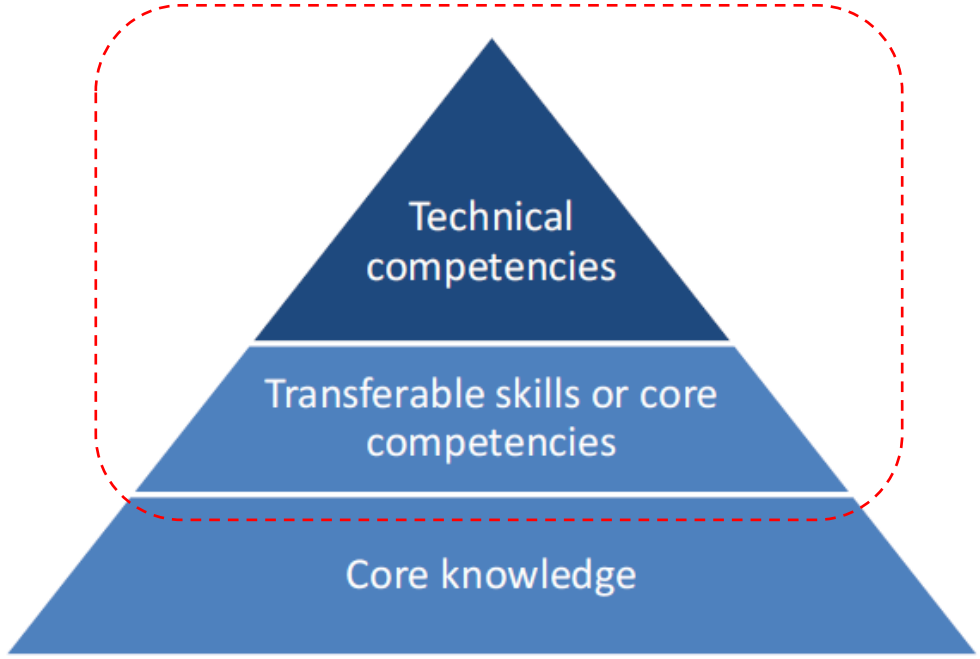
Different organisations categorise competency types differently

## Organisation A

- **Technical** Competencies
  - Work function specific
- **Generic** Competencies
  - 'transferable' & soft skills

## Organisation B

- **Core** Competencies
  - Required by all
- **Functional** Competencies
  - Required by those within specific work functions
- **Leadership** Competencies
  - Required by those with supervisory responsibilities




Guide to Competency, 2018 edition (WMO-No.1205)

# Proficiency Levels/ Target Levels

Competencies are task-based. Proficiency levels provide an indication on “how well” an individual is expected to demonstrate a particular competency in relation to his/her job role. Different organisations may use different scales for proficiency levels.



- Basic level
- Intermediate level
- Advanced level

# Sample Guide to Proficiency Levels

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Work Complexity | Routine | Some non-routine and complex | Mostly non-routine and complex | High level of technicality | Highly complex level of technicality |
| Dependency | Close supervision | Little guidance | Independent | Independent | Independent |
| Analytical Thinking | Minimal | Some reasoning | Need judgment | Pre-empt problems and provide solutions | Strategic & holistic thinking to innovate new solutioning |
| Knowledge | Factual | Integration of factual knowledge | Some abstract knowledge | Abstract knowledge | Highly sophisticated knowledge |
| Teach Others | - | - | Provide guidance | Provide coaching | Provide mentoring |





# Competency Frameworks (CFs)

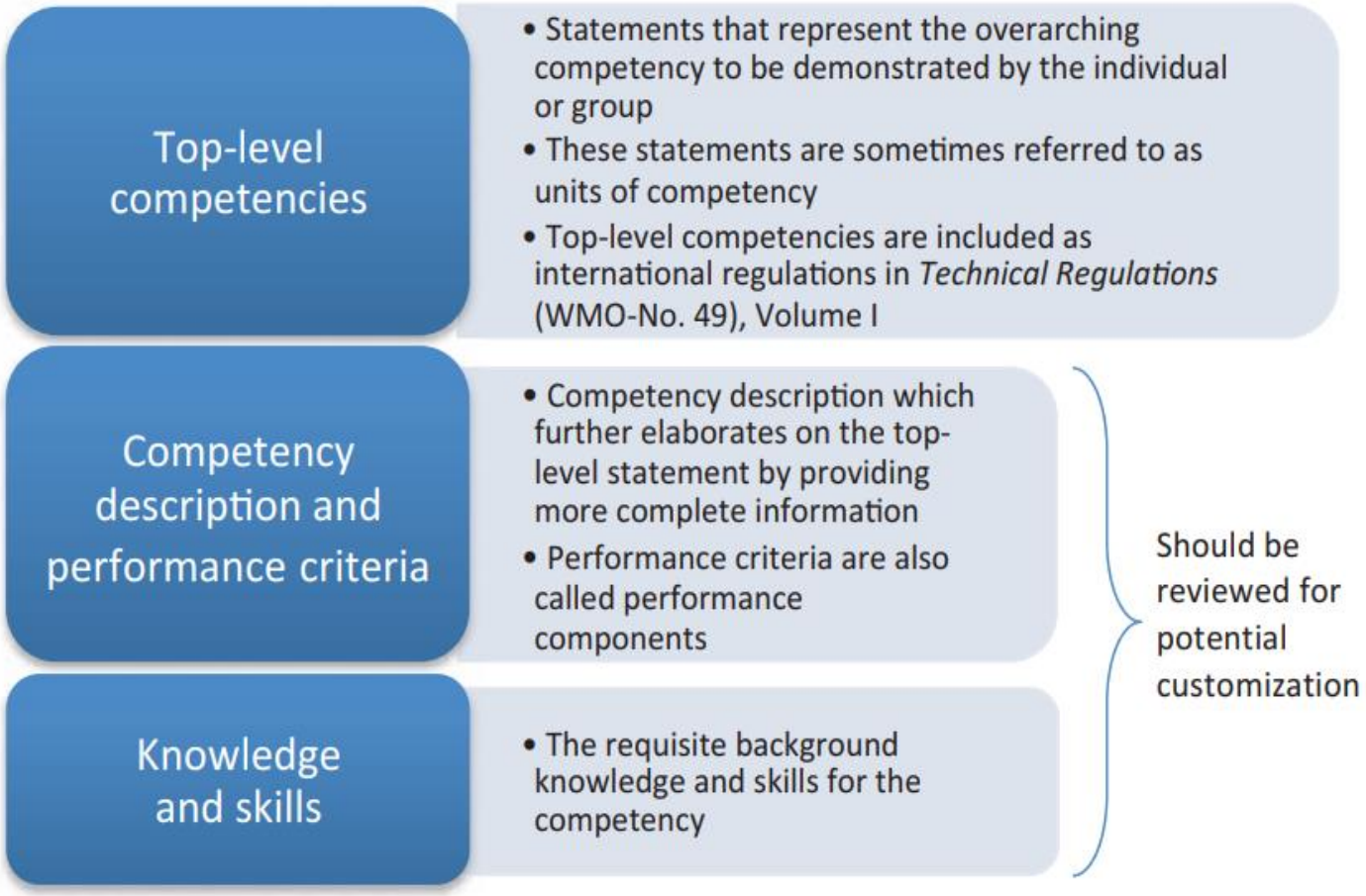
- A competency is not an entire job, and usually several competencies' are required for a job.
- Competency Frameworks (CFs) act as a communication tool to convey all such competencies needed by employees to perform their jobs well.
- They provide a common structure whilst allowing flexibility for the broad spectrum of organisations that use them
- They define each individual competency, underpinning knowledge & skills, performance criteria, competency elements, and target levels (i.e. proficiency levels) required by all job roles within a specific occupation / job family


What are Competency Frameworks? - An Introduction to Competency Frameworks - YouTube

# Competency Format Example 1: SkillsFuture SG

| Competency | Analytics and Computational Modelling | | | | |
|---|---|---|---|---|---|
| **Competency Description** | Develop, select and apply algorithms and advanced computational methods to enable systems or software agents to learn, improve, adapt and produce desired outcomes or tasks which also involves the interpretation of data, including the application of data modelling techniques to explore and address a specific issue or requirement | | | | |
| **Proficiency Levels & Description** | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **Level 5** |
| | | Perform basic data analysis and assist in conducting basic statistical modelling, drawing accurate inferences from the data | Identify and utilise appropriate statistical algorithms and data models to test hypotheses and derive patterns or solutions | Develop and utilise new algorithms and advanced statistical models to enable the production of desired outcomes | Design advanced statistical and computational models, and spearhead the application of algorithms and modelling techniques to new domains |
| **Knowledge** | | • Hypothesis testing concepts and methods<br>• Common statistical methods in data analysis<br>• Various kinds of data analysis<br>• Basic statistical models<br>• Interpretation of data outcomes and findings | • Types of algorithms and advanced computational methods<br>• Range and application of various statistical algorithms<br>• Range and application of various types of data models<br>• Usage of analytics platforms and tools | • Range of statistical and advanced computational modelling techniques<br>• Advanced mathematical models and theories<br>• Elements of various algorithms<br>• Features and applicability of various data models<br>• Features, pros and cons of various statistical approaches, | • Industry developments and trends in analytics, algorithms and statistical modelling<br>• New and emerging data analytics and modelling tools and methodologies<br>• Broad range of algorithms and advanced programming techniques<br>• Elements of complex or advanced algorithms and |
| **Abilities** | | • Apply hypothesis testing concepts and methods on data<br>• Identify appropriate statistical methods to address simple or commonly-encountered problems or issues<br>• Provide assistance in conducting basic statistical modelling<br>• Perform data analysis using basic statistical methods and techniques, to determine the relationship between variables<br>• Identify unintended outcomes | • Identify appropriate statistical algorithms and data models to test hypotheses or theories<br>• Use appropriate analytics platforms and analytical tools given specific analytics and reporting requirements<br>• Utilise a range of statistical methods and analytics ap proaches to data<br>• Conduct statistical modelling of data to derive patterns / solutions<br>• Perform coding and configuration of software agents | • Evaluate prospective analytical tools and platforms for their functional capabilities and ability to meet requirements of the analytic environment<br>• Develop new algorithms to enable the learning, improvement, adaptation or reproduction of outcomes<br>• Develop regression models, including linear, multiple and logistic regression models<br>• Develop mathematical models | • Direct data analytics and statistical modelling efforts across the organisation<br>• Make decisions on appropriate data analytics and computational methodologies to the problem<br>• Design complex or advanced statistical and computational models<br>• Evaluate a broad range of algorithms and advanced computational methods to determine suitability |

# Competency Format Example 2: WMO




**Three sections of a WMO competency description**

**COMPETENCY 1: MONITOR CONTINUALLY THE EVOLVING METEOROLOGICAL AND HYDROLOGICAL SITUATION, UPDATED FORECASTS AND WARNINGS AND THE IMPACT OF ANTICIPATED CONDITIONS**

**Competency description**

Observations and forecasts of meteorological/hydrological parameters and significant meteorological/hydrological phenomena are continuously analysed and monitored, together with amendments and updates of forecasts and warnings. Assessments of the likely impact of anticipated conditions are developed and updated as required.

**Performance criteria**

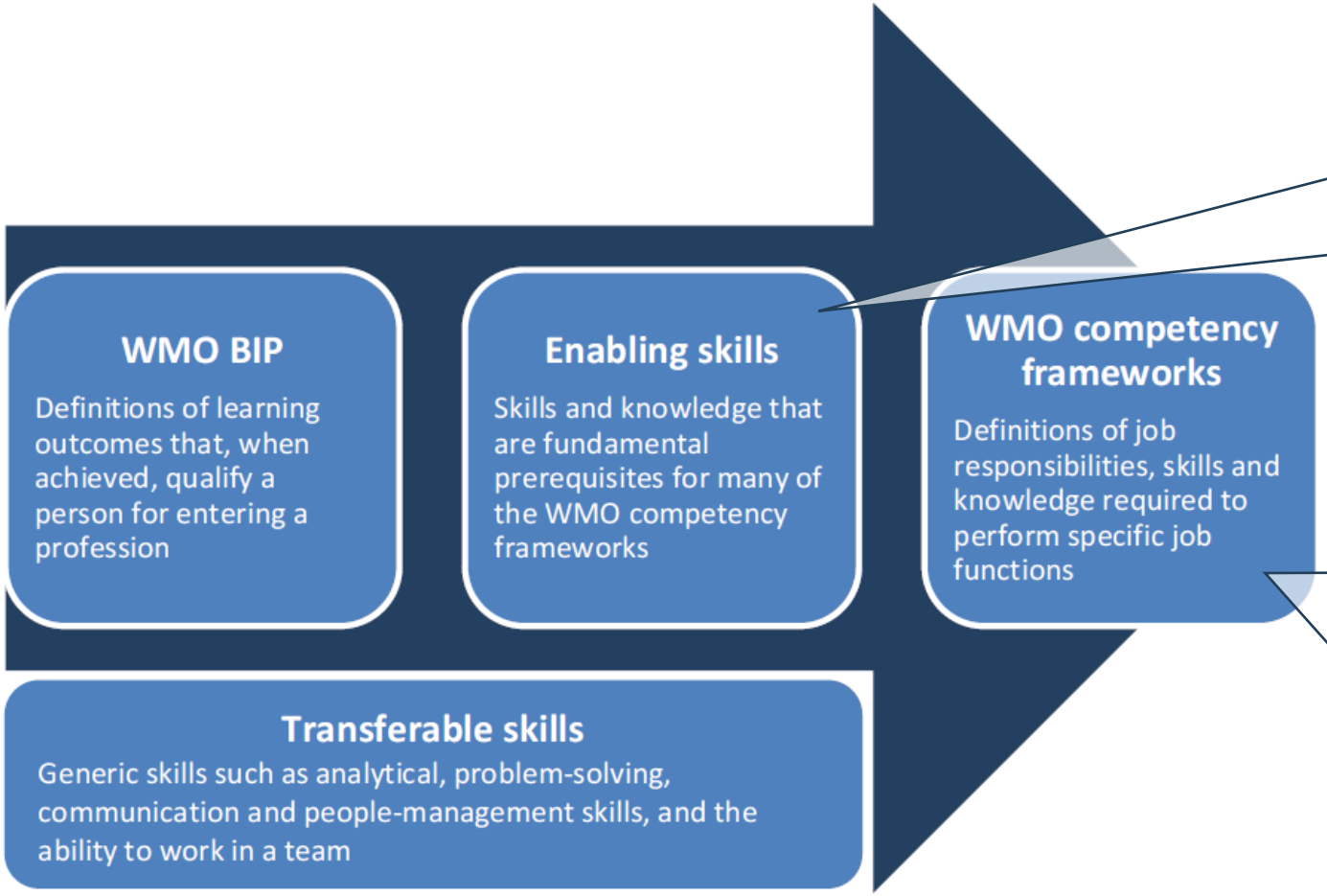
1. Monitor meteorological/hydrological parameters and evolving significant meteorological/hydrological phenomena, and validate current forecast and warnings on the basis of these parameters;
2. Monitor information relating to the impact of meteorological and hydrological events.

**Background knowledge and skills**

- Understanding of the key elements of synoptic, dynamical and physical meteorology, and core analytical and diagnostic skills;
- Application of the theory, methods and practices of meteorological and hydrological analysis and diagnosis;
- Ability to visualize and conceptualize meteorological and hydrological information in multiple dimensions (spatial, temporal);
- Appreciation of the influence of topography, land cover and, if relevant, bodies of water and snow fields on local meteorology;
- Interpretation of in-situ and remote-sensed observations and data;
- Understanding of the characteristics of meteorological and hydrological sensors and instruments;
- Familiarity with the acquisition, processing and assimilation of meteorological and hydrological data, including quality control;
- Understanding of procedures, standards and technical regulations regarding observations and forecast products;
- Understanding of sector-specific activities and vulnerabilities affected by meteorological and hydrological events.

[WMO Competency Frameworks | World Meteorological Organization]

# WMO Competency Frameworks Structure




Relationship between qualifications, enabling skills, transferable skills and WMO competency requirements

- Satellite Skills and Knowledge for Meteorological Forecasters;
- Radar Skills and Knowledge for Meteorological Forecasters;
- Numerical Weather Prediction Skills and Knowledge for Forecasters

**Compendium of WMO Competency Frameworks**

# Use of Competencies

## Officer's Perspective

### Development & Performance Management

Understand competencies required to perform well in a role

Identify developmental opportunities based on competency gaps – as assessed by officer or supervisor

### Career Development / Recruitment

Search for suitable job opportunities across the Service using competencies

Explore competency profiles of jobs to determine possible career opportunity and pathways roles

## Agency / Job Family's Perspective

### Capability Development

Builds a common understanding of capability targets/standards for an agency/a job family, supports professionalisation

### Strategic Workforce Planning

Facilitates building of capability landscape, to identify capability gaps and determine workforce strategies to employ

### Talent Identification / Succession Planning

Objective basis to identify Hi-Pos and build succession pipeline of officers

# Competency-based Workforce Management

**Competencies define concretely what is needed for individual success at work and to meet organisational outcomes**

**RECRUITMENT & REMUNERATION**

Greater success in identifying candidates most likely to demonstrate job-fit; more competitive salaries based on market value of skills

**PERFORMANCE MANAGEMENT**

Greater transparency of job expectations and more objective, evidence-based assessment of officers' demonstrated performance and capability gaps

**PROMOTION & SUCCESSION PLANNING**

Greater accuracy in identifying officers who exhibit readiness to assume larger role and other potentially suitable officers for leadership pipeline

**CAREER DEVELOPMENT & DEPLOYMENT**

More deliberate and coherent career pathing with clarity on specific opportunities that allow officers to develop relevant skills/experience required to achieve aspirations

**LEARNING & DEVELOPMENT**

More targeted and effective interventions designed to equip officers with knowledge/skills directly relevant to job requirements and identified gaps

*Adapted from Public Service Division, Singapore

# 3 Competency-based Training

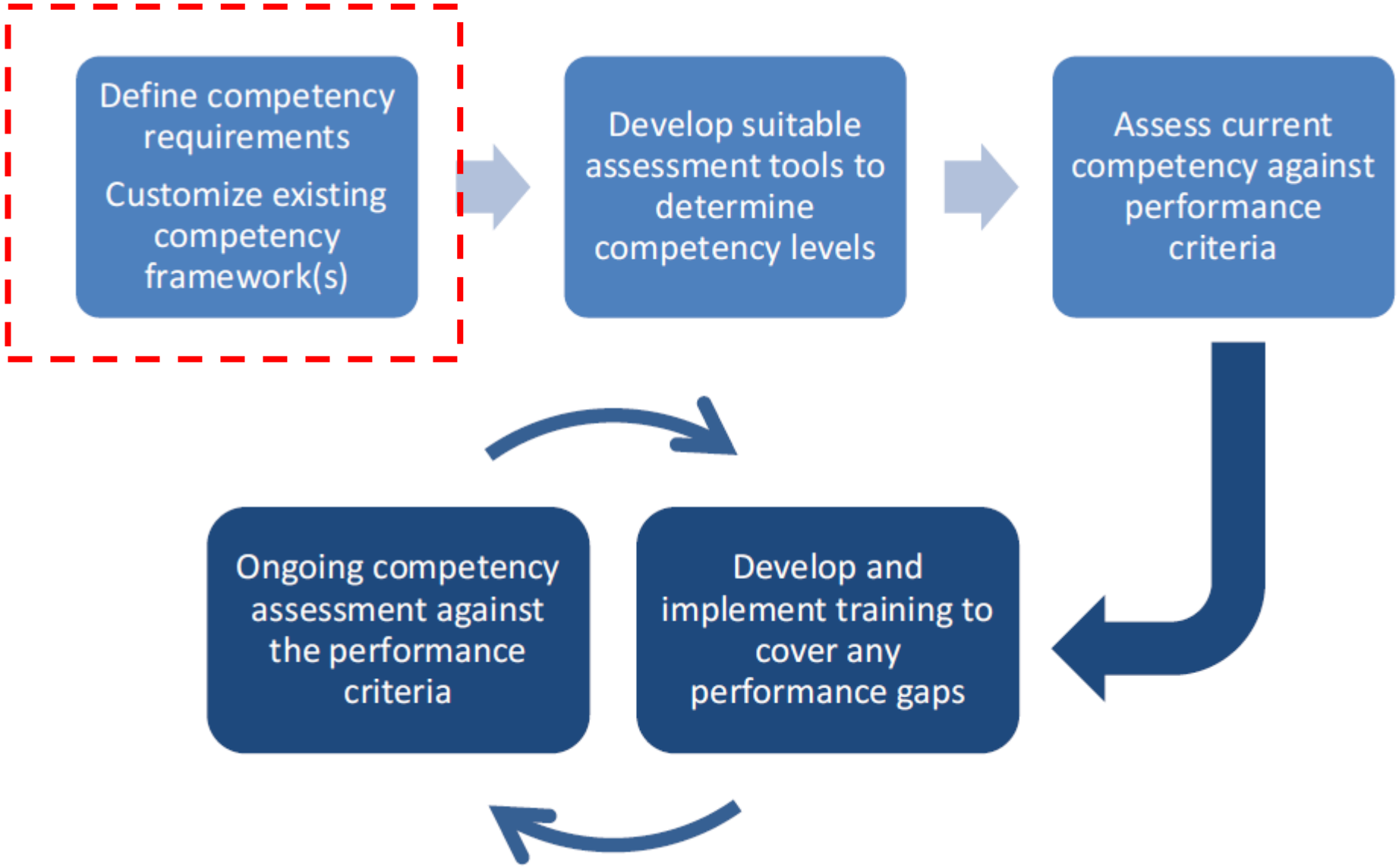
**LEARNING & DEVELOPMENT**

More targeted and effective interventions designed to equip officers with knowledge/skills directly relevant to job requirements and identified gaps

**KEY STEPS**

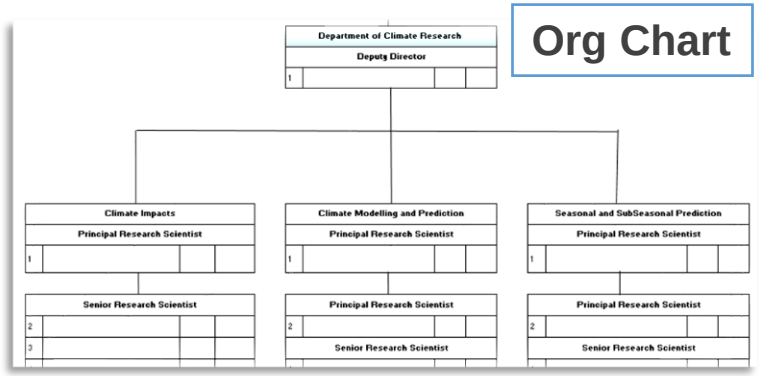
- Identify Competency Requirements for job roles within the organisation (Competency Framework Development)
- Performance Gap & Learning Needs Analysis
- Learning Intervention Design, Development and Implementation

# WMO's Ongoing Competency Process



# Competency Framework Development Process

Job-task analysis is carried out to derive the competencies




**Org Chart**

\+ **Job Descriptions** — JD

\+ **SOPs & Work Instructions** — Other Info

\+ **Consultations with stakeholders**

## Rationalised Job Roles, Critical Work Functions & Key Tasks

**Meteorologist**

**Senior Meteorologist**

**Principal Meteorologist**

**Head/ Deputy Director/ Director**

## Identification of Competencies

| Competency 1 | Competency 2 | Competency 3 | Competency 4 | Competency 5 |
|---|---|---|---|---|

# Deriving Competencies

| Job Role/ Designation | Critical Work Functions | Key Tasks | Competency Descriptor<br>A - Ability, K - Knowledge | Competency Category | Proficiency Level |
|---|---|---|---|---|---|
| Executive Meteorologist | Provide meteorological and multi hazards* monitoring and warning services catering to various customer sectors | Analyse and continually monitor the evolving meteorological conditions/multi hazards and geophysical situation and to issue forecast and warning products | A - Identify meteorological phenomena (e.g. thunderstorms, microbursts, sea-breeze, tropical cyclone) and assess their intensity and propagation changes through integration of information derived from theory and observations including specialised meteorological systems (such as weather radar, satellites, profilers etc) | General Meteorology | 3 |
| | | | A - Analyse, interpret and diagnose data and information using tools such as Numerical Weather Prediction (NWP), wave model analysis to identify meteorological features pertinent to the area of forecast responsibility | Weather Analysis and Forecasting | 3 |
| | | | A - Monitor the evolution of significant meteorological phenomena, and validate current forecasts and warnings on the basis of these parameters | General Meteorology | 3 |
| | | | A - Evaluate the need for amendments to forecasts and for updates and issuance of warnings against documented criteria and thresholds | Weather Analysis and Forecasting | 3 |
| | | | A - Monitor information related to impacts of recent meteorological events | Weather Analysis and Forecasting | 3 |
| | | | A - Visualize and conceptualize meteorological information in multiple dimensions (spatial, temporal) | Weather Analysis and Forecasting | 3 |

**Primary accountabilities of the job role**

**What a person in the job role is expected to do**

**Comprise occupation / job-specific knowledge & abilities that a person needs to have to perform the corresponding key task**

**Grouping of the list of competencies**

**Standardised proficiency levels to objectively determine the level of competence for the job role**

You may contextualise competency descriptors from existing competency frameworks or write a new statement on your own

# Methods for drafting Critical Work Functions (CWF) and Key Tasks (KT)

**Method 1**

Step 1
Think of the job in terms of its **key accountabilities or main responsibilities**

Draft the CWFs

Step 2

Generate **specific job tasks** associated with each CWF

Step 3

**Condense** the specific job tasks into **3 to 5 concise KTs**

**Method 2**

Step 1
Brainstorm a list of **all duties** required to perform the job

Step 2

Review the list and **group the duties** in accordance to specific **main functions and responsibilities**

Step 3

Assign a **CWF to each grouping** of duties

Step 4

**Condense** the specific job tasks in each CWF into **3 to 5 concise KTs**

# WMO CF Competencies' Performance Criteria, Knowledge & Skills to be contextualised

**COMPETENCY 5: ENSURE THE QUALITY OF METEOROLOGICAL AND HYDROLOGICAL INFORMATION AND SERVICES**

**Competency description**

The quality of meteorological and hydrological forecasts, warnings, impact assessments, and related products is maintained through the application of quality management systems processes where appropriate.

**Performance criteria**

1. Apply the organization's quality management system and procedures;
2. Monitor and assess the effectiveness of warnings of high-impact meteorological and hydrological events through user-based feedback;
3. Work with disaster management agencies and others to strengthen the role of NMHSs as the single authoritative voice for warnings of high-impact meteorological and hydrological events;
4. Contribute to the development of documentation and archiving systems for meteorological and hydrological hazard and impact data, including quality assurance and data management;
5. Collaborate with disaster management agencies and others in the development of post-event assessments of high-impact meteorological and hydrological events;
6. Contribute to outreach and training initiatives particularly those relevant to DPM activities.

**Background knowledge and skills**

- Knowledge of quality management system processes;
- Knowledge of methodologies for the development, delivery and assessment of user-feedback surveys;
- Knowledge of procedures in documentation and archiving systems;
- Knowledge of verification processes;
- Knowledge of operating and contingency procedures of NMHSs and other relevant agencies;
- Understanding metrics and methods used in developing post-assessments/case studies and verification.

| Competency | Quality Assurance Management |
|---|---|
| **Competency Description** | Ensure the quality of meteorological and hydrological information and services through the application of quality management systems processes where appropriate |
| **Proficiency Levels** | **Nil** |
| **Performance Criteria** | 1. Apply the organization's quality management system and procedures;<br>2. Monitor and assess the effectiveness of warnings of high-impact meteorological and hydrological events through user-based feedback;<br>3. Work with disaster management agencies and others to strengthen the role of NMHSs as the single authoritative voice for warnings of high-impact meteorological and hydrological events;<br>4. Contribute to the development of documentation and archiving systems for meteorological and hydrological hazard and impact data, including quality assurance and data management;<br>5. Collaborate with disaster management agencies and others in the development of postevent assessments of high-impact meteorological and hydrological events;<br>6. Contribute to outreach and training initiatives particularly those relevant to DPM activities. |
| **Abilities** | <Organisations need to further break-down and contextualise the performance criteria> |
| **Knowledge** | • Knowledge of quality management system processes;<br>• Knowledge of methodologies for the development, delivery and assessment of userfeedback surveys;<br>• Knowledge of procedures in documentation and archiving systems;<br>• Knowledge of verification processes;<br>• Knowledge of operating and contingency procedures of NMHSs and other relevant agencies;<br>• Understanding metrics and methods used in developing post-assessments/case studies and verification. |

# WMO CF Competencies' Performance Criteria, Knowledge & Skills to be contextualised

**Table 1. Example of customized Aeronautical Meteorological Forecaster competency for support to low-level flight operations**

| **1. Analyse and continually monitor the weather situation**<br>Previously issued forecasts are continually checked against observed parameters and weather phenomena to determine the need for issuance, cancellation or amendment/update of forecasts and warnings in accordance with documented thresholds and regulations. | | |
|---|---|---|
| WMO second-level competency criteria | Criteria adapted to the national/organizational framework | |
| 1.1 Analyse and diagnose the weather situation as required in forecast and warning preparation. Note that analysis may be defined as answering the question "what is happening?", and diagnosis as answering "why is it happening?" | (i) | The forecaster can establish the broadscale and synoptic situation using satellite imagery and surface and upper-air observations and analysis.<br>NB: Manual chart analysis is not compulsory; however, forecasters must be able to describe both the surface and upper-air conditions and influences. |
| | (ii) | The forecaster can identify what and where the weather-producing features are. |
| | (iii) | The forecaster can explain the expected evolution of the synoptic pattern during the forecast period. |
| 1.2 Monitor weather parameters and evolving significant weather phenomena, and validate these against current forecasts and warnings on the basis of those parameters. | (i) | The forecaster demonstrates active and continuous weather-watch using appropriate visualisation/observation/analysis tools. |
| | (ii) | The forecaster routinely compares observations to current forecasts. For example, he/she compares Terminal Aerodrome Forecast (TAF) or Area QNH forecast against METARs when they become available (at least once per hour), and ARFOR against wind flights, satellite images, radar and synoptic chart as new data become available. |
| 1.3 Appraise the need for amendments to forecasts and updates of warnings against documented criteria and thresholds, and notify the relevant meteorological office of any divergence between observed and forecast conditions. | (i) | The forecaster amends forecasts in accordance with amendment criteria or when justified. |
| | (ii) | The forecaster follows local documented procedures (Aviation Operations Manual) in notifying stakeholders when forecasts/warnings deteriorate/improve below/above the defined thresholds. |

*Source:* Bureau of Meteorology Training Centre, Bureau of Meteorology, Australia

# Drafting Knowledge & Ability Statements – Sample Template

| **Job title** | | e.g. Senior Process Technician | | | | |
|---|---|---|---|---|---|---|
| **Key Performance Area** | **Key Task** | **Performance Expectations** | | **Abilities and Knowledge** | | **Competency Title** |
| | | **Process Standards** | **Key Results** | | | |
| What is the broad duty and accountability? | What is the employee require to do? | What are the SOPs, guidelines, insights and discretion that are to be applied? | What is the purpose and outcome expected upon completion of the task? | What are the abilities and knowledge required for successful completion of task? | | What title best describe the competency? |
| E.g. Administer Workplace Safety and Health (WSH) and Environmental Management Systems (EMS) | e.g. Supervise team members to carry out good housekeeping practices | E.g. Ensure the following steps are carried out<br>• Communicate WSH policies, practices and housekeeping standards to team members<br>• Coordinate housekeeping roles and duties among team members<br>• Supervise work areas to ensure compliance by team members | E.g. So that:<br>• Team members are aware of WSH policies, practices, practices and housekeeping requirement<br>• Team members are compliant to housekeeping requirement<br>• Workplace area is neat and safe | E.g. <u>Abilities</u><br>Able to:<br>• Communicate WSH policies, practices and housekeeping standards to team members<br>• Coordinate housekeeping roles and duties among team members<br>• Inspire team members to be compliant to housekeeping requirement | • E.g. <u>Knowledge</u><br>• WSH policies & practices<br>• Housekeeping standards<br>• Effective communication principles<br>• Effective delegation principles<br>• Motivational theory | • Housekeeping supervision |

# WMO Competencies for Public Weather Service Forecasters and Advisers

| COMPETENCY | PERFORMANCE CRITERIA |
|---|---|
| **COMPETENCY 1: ANALYSE AND CONTINUALLY MONITOR THE EVOLVING METEOROLOGICAL AND HYDROLOGICAL SITUATION** | 1. Analyse, interpret and diagnose data and information to identify meteorological/ hydrological features pertinent to the area of forecast responsibility;<br>2. Monitor meteorological/hydrological parameters and evolving significant meteorological/ hydrological phenomena, and validate current forecasts and warnings on the basis of these<br>parameters;<br>3. Evaluate the need for amendments to forecasts and for updates of warnings against documented criteria and thresholds;<br>4. Monitor information related to impacts of recent meteorological and hydrological events. |
| **COMPETENCY 2: FORECAST METEOROLOGICAL AND HYDROLOGICAL PHENOMENA AND PARAMETERS** | 1. Forecast meteorological and hydrological phenomena and parameters as required, using appropriate tools and including forecast uncertainties;<br>2. Ensure that forecasts are prepared and issued in accordance with national or regional practices, relevant codes and technical regulations on content, accuracy and timeliness;<br>3. Ensure, insofar as practicable, that forecasts of meteorological and hydrological phenomena and parameters are consistent (spatially and temporally) across boundaries of the area of responsibility;<br>4. Monitor forecasts issued for other regions, and liaise with adjacent regions as required. |
| **COMPETENCY 3: WARN OF HAZARDOUS METEOROLOGICAL AND HYDROLOGICAL PHENOMENA** | 1. Forecast hazardous meteorological and hydrological phenomena, including spatial extent, onset and cessation, duration, intensity and temporal variations;<br>2. Ensure that warnings are prepared and issued in accordance with national protocols for hazardous phenomena and their impacts;<br>3. Ensure, insofar as practicable, that warnings of hazardous meteorological and hydrological phenomena are consistent (spatially and temporally) across boundaries of the area of responsibility;<br>4. Monitor warnings issued for other regions, and liaise with adjacent regions as required;<br>5. Maintain awareness of the impacts of hazardous meteorological and hydrological phenomena that are the subject of warnings and notifications. |
| **COMPETENCY 4: COMMUNICATE METEOROLOGICAL AND HYDROLOGICAL INFORMATION AND POTENTIAL IMPACTS TO INTERNAL AND EXTERNAL USERS** | 1. Ensure that all forecasts and warnings are disseminated through the authorized communication means and channels to designated user groups, as specified in relevant standard operating procedures;<br>2. Explain meteorological and hydrological data and information, including uncertainties, where required;<br>3. Deliver briefings and provide consultation to meet specific user needs as required. |
| **COMPETENCY 5: ENSURE THE QUALITY OF METEOROLOGICAL AND HYDROLOGICAL INFORMATION AND SERVICES** | 1. Apply the organization's quality management system and procedures;<br>2. Validate meteorological and hydrological data, products, forecasts and warnings<br>(timeliness, completeness, accuracy);<br>3. Assess the impact of known error characteristics (bias, achievable accuracy of observations<br>and sensing methods);<br>4. Monitor operational systems and take contingency actions where appropriate;<br>5. Contribute to case studies and post-reviews as required, including assimilation of user<br>feedback and impact information;<br>6. Mentor junior colleagues and provide support and advice as required. |

# Sample CWF & KTs for an Executive Meteorologist under Weather Services

| | |
|---|---|
| **Job Family / Function** | **Meteorological Services - Weather Services** |
| **Job Role** | **Executive Meteorologist** |

| Critical Work Functions | Key Tasks |
|---|---|
| **Provide meteorological services, and multi hazards* monitoring and warning services catering to various customer sectors such as for civil aviation, military, maritime, government agencies, businesses and the general public**<br><br>** e.g. Haze, volcanic eruption, tsunami, radioactive fallout, forest fire, earthquake, thunderstorm* | Analyse and continually monitor the evolving meteorological conditions/multi hazards and geophysical situation for issuance, amendment, cancellation or updating of forecast and warning products |
| | Develop forecasts and related advisory/information for meteorological conditions to facilitate customers' safety, and operational planning and decision making |
| | Prepare analysis reports, timely warning and related advisory/information for hazardous meteorological and geophysical conditions to facilitate customers' safety, and operational planning and decision making |
| | Communicate concise and complete meteorological and geophysical information and potential impacts clearly to various customer sectors (e.g. civil aviation sector) |
| | Apply quality management system processes to ensure quality of meteorological and geophysical information and services is maintained |
| | Attend to feedback, queries (including media) on meteorological/haze/geophysical information and process forecasting services request from public and other organisations including from CAAS, airlines operations and other aviation MET users as well as the military and government agencies and specialised users |

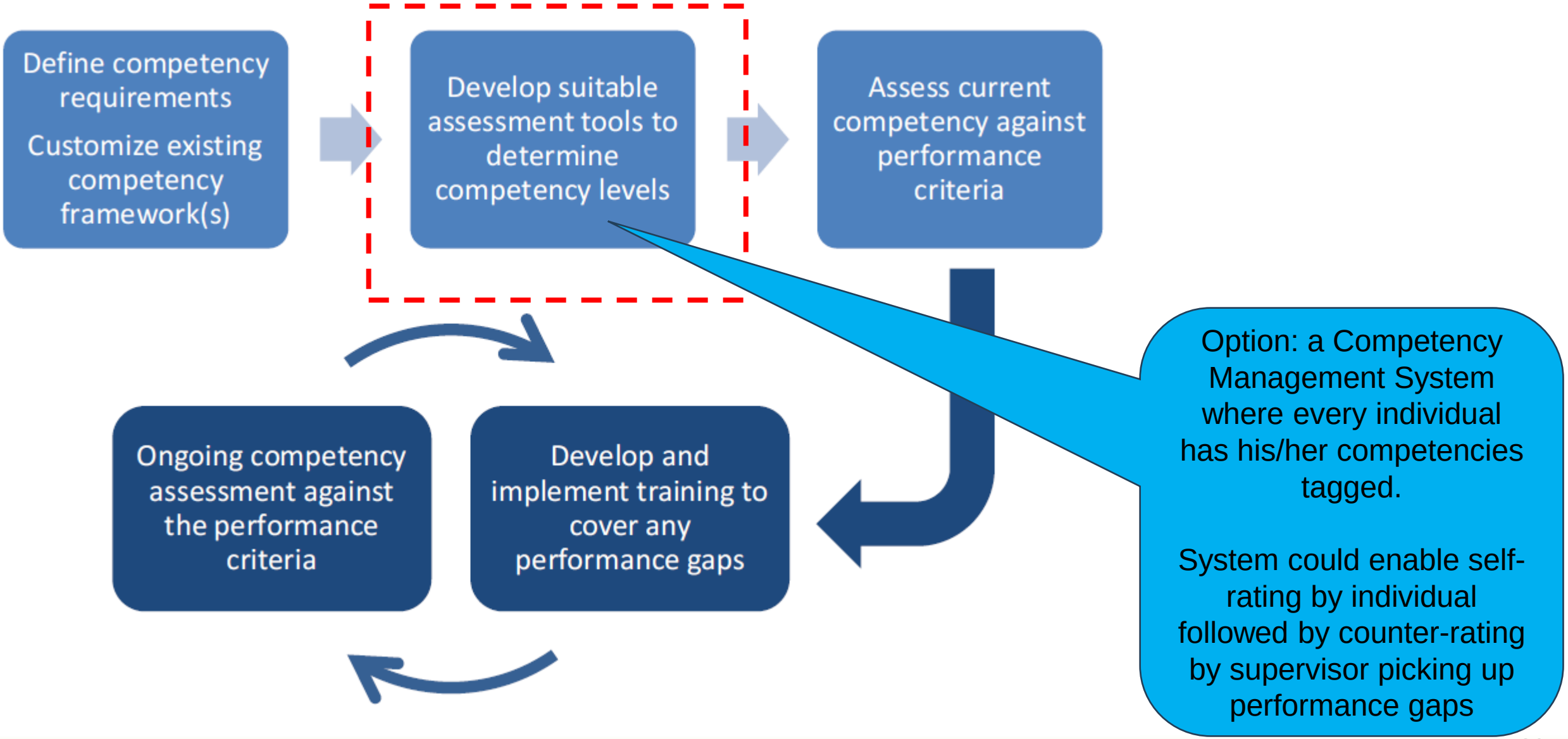
# Sample Competencies for an Executive Meteorologist under Weather Servcies

| | | | | |
|---|---|---|---|---|
| **Job Family / Function** | **Meteorological Services - Weather Services** | | | |
| **Job Role** | **Executive Meteorologist** | | | |
| **Skills & Competencies** | **Functional Competencies** | **Proficiency Level** | **Core and Leadership Competencies** | **Proficiency Level** |
| | General Meteorology | 4 | Process Quality Management | 3 |
| | Weather Analysis and Forecasting | 4 | Stakeholder Management | 3 |
| | Meteorological Forecasting Standards and Practices | 3 | Communication | 3 |
| | Meteorological Services Operational Procedures | 3 | Interpersonal Skills | 3 |
| | Meteorological Systems and Applications | 3 | Problem Solving | 3 |
| | Meteorological Data and Codes | 3 | Innovation Management | 3 |
| | Scientific Communication | 3 | Workplace Safety and Health | 2 |
| | Scientific Programming | 3 | Procurement Literacy | 2 |
| | International Relationship Management | 2 | Records Management | 2 |
| | Project Management | 2 | | |

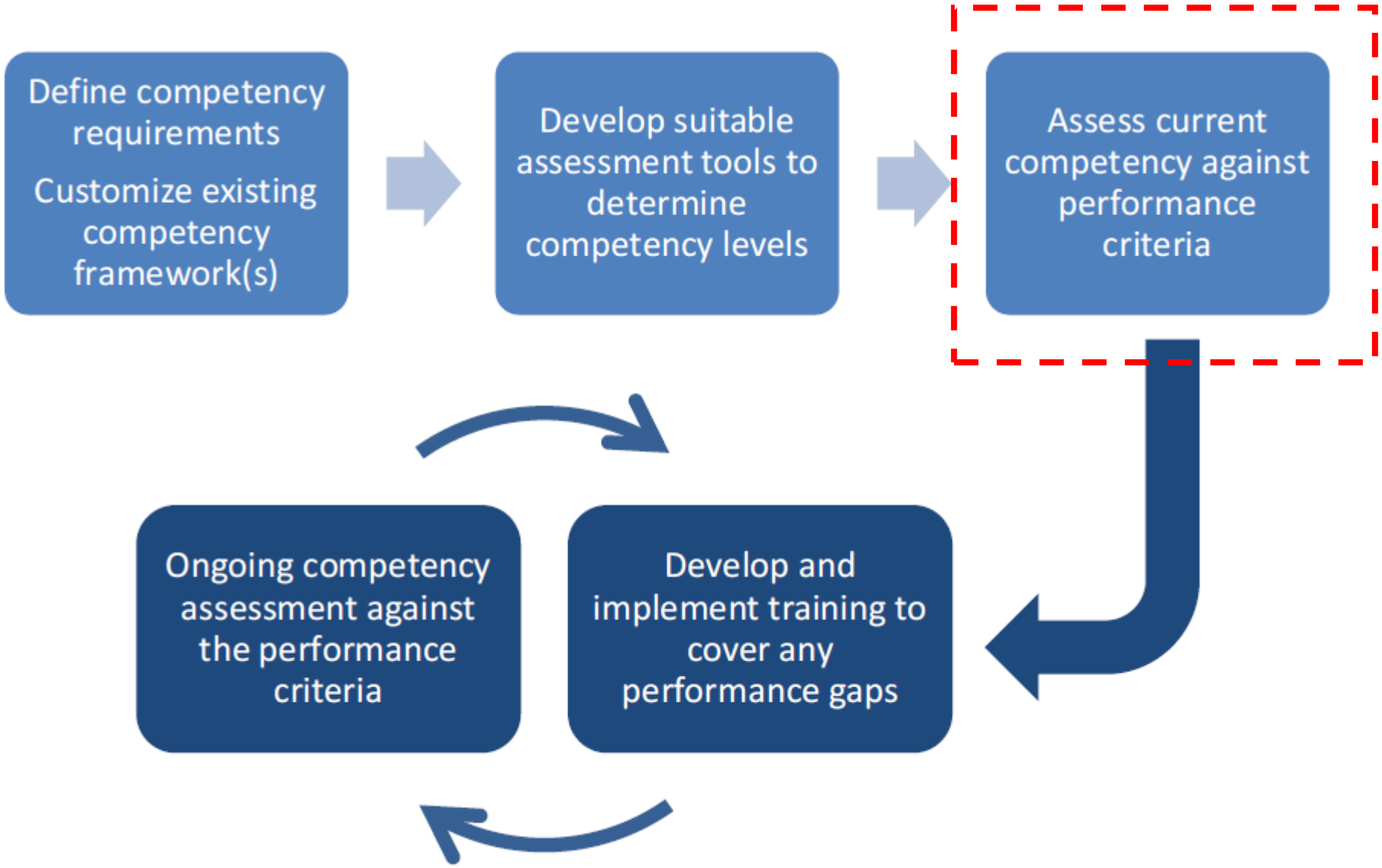
# Sample Competencies for an Principal Scientist under Climate & Weather Research

| | | | | |
|---|---|---|---|---|
| **Job Family/ Function** | **Meteorological Services - Climate/Weather Research** | | | |
| **Job Role** | **Principal Research Scientist** | | | |
| **Skills & Competencies** | **Functional Competencies** | **Proficiency Level** | **Core and Leadership Competencies** | **Proficiency Level** |
| | Scientific Research | 5 | Stakeholder Management | 5 |
| | General Meteorology | 5 | Communications (including written/presentations/public comms) | 4 |
| | Climate and Weather Models | 5 | Process Quality Management | 4 |
| | Project Management | 5 | Decision Making | 4 |
| | Scientific Communication | 4 | Enterprise Risk Management | 4 |
| | Strategic Planning | 4 | Financial Literacy | 3 |
| | International Relationship Management | 4 | Interpersonal Skills | 4 |
| | Media Management | 4 | People Development | 4 |
| | Scientific Programming | 3 | Performance Management | 4 |
| | Data Analytics | 4 | Problem Solving | 4 |

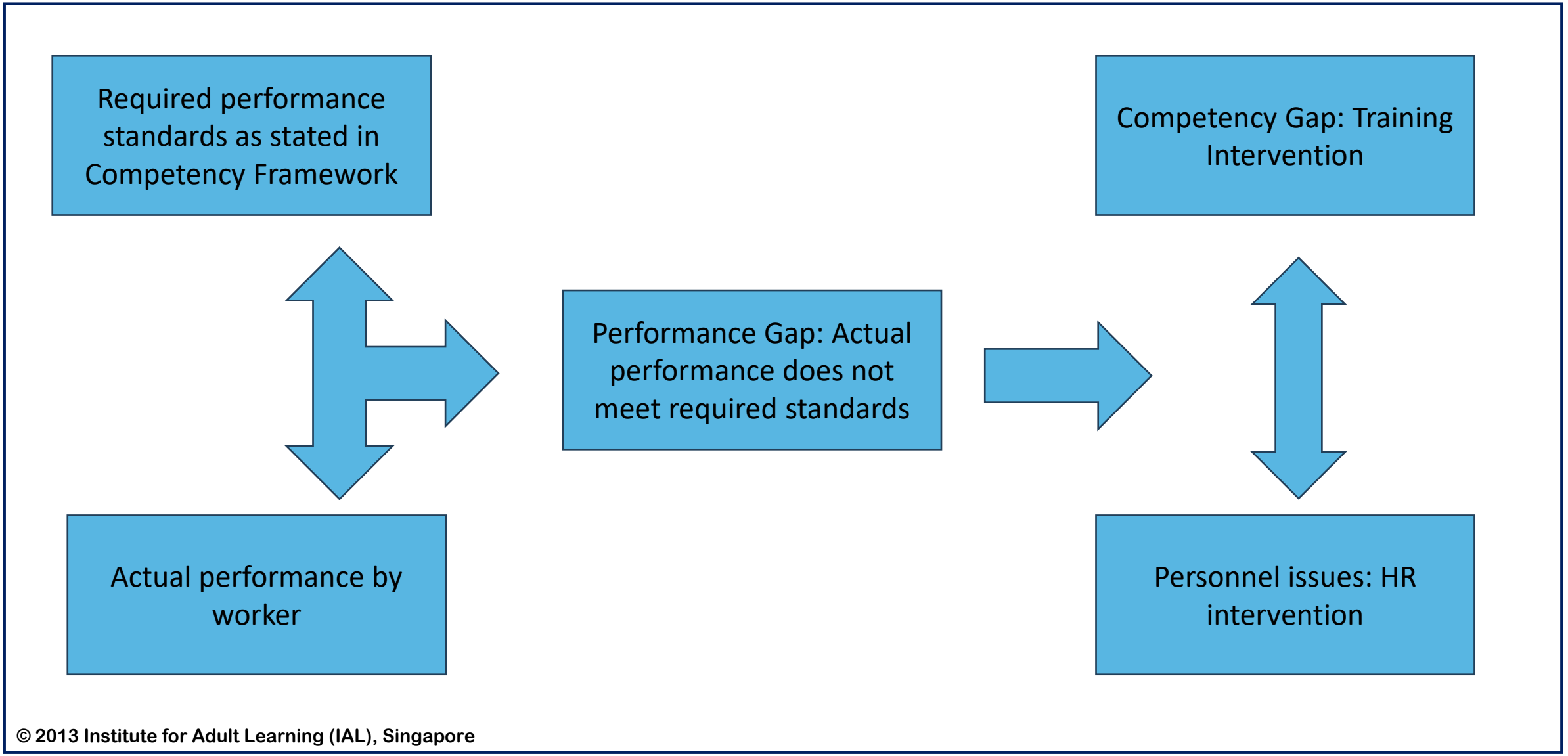
# WMO's Ongoing Competency Process



# WMO's Ongoing Competency Process



# Training Intervention Model

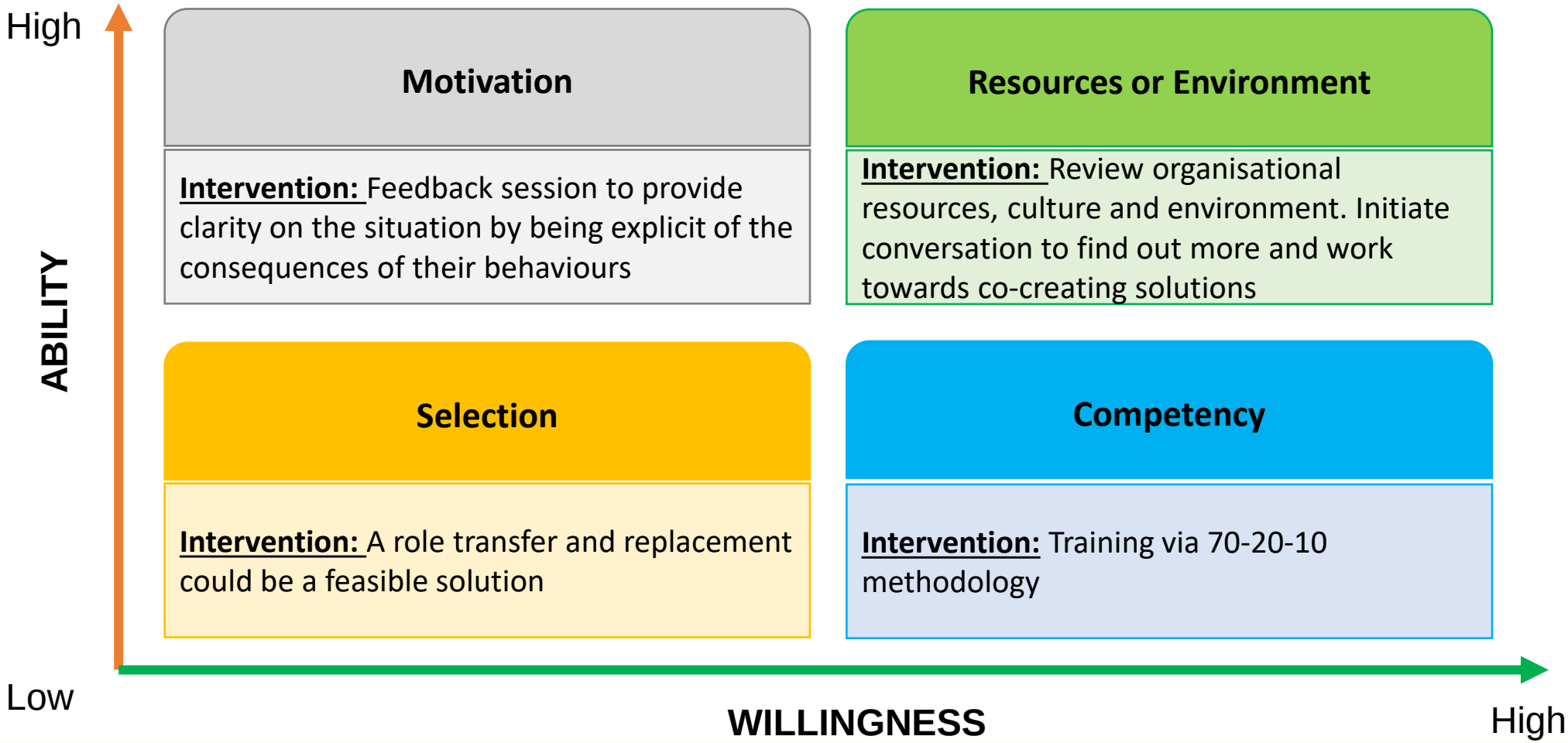


# PAQ Method to Identify the Appropriate Intervention

**Performance Analysis Quadrant (PAQ)**

The PAQ is a tool that can help to identify the appropriate intervention whilst taking into consideration the following two questions:

1. Does this officer have adequate job knowledge?
2. Does the officer have the appropriate attitude to perform the job?

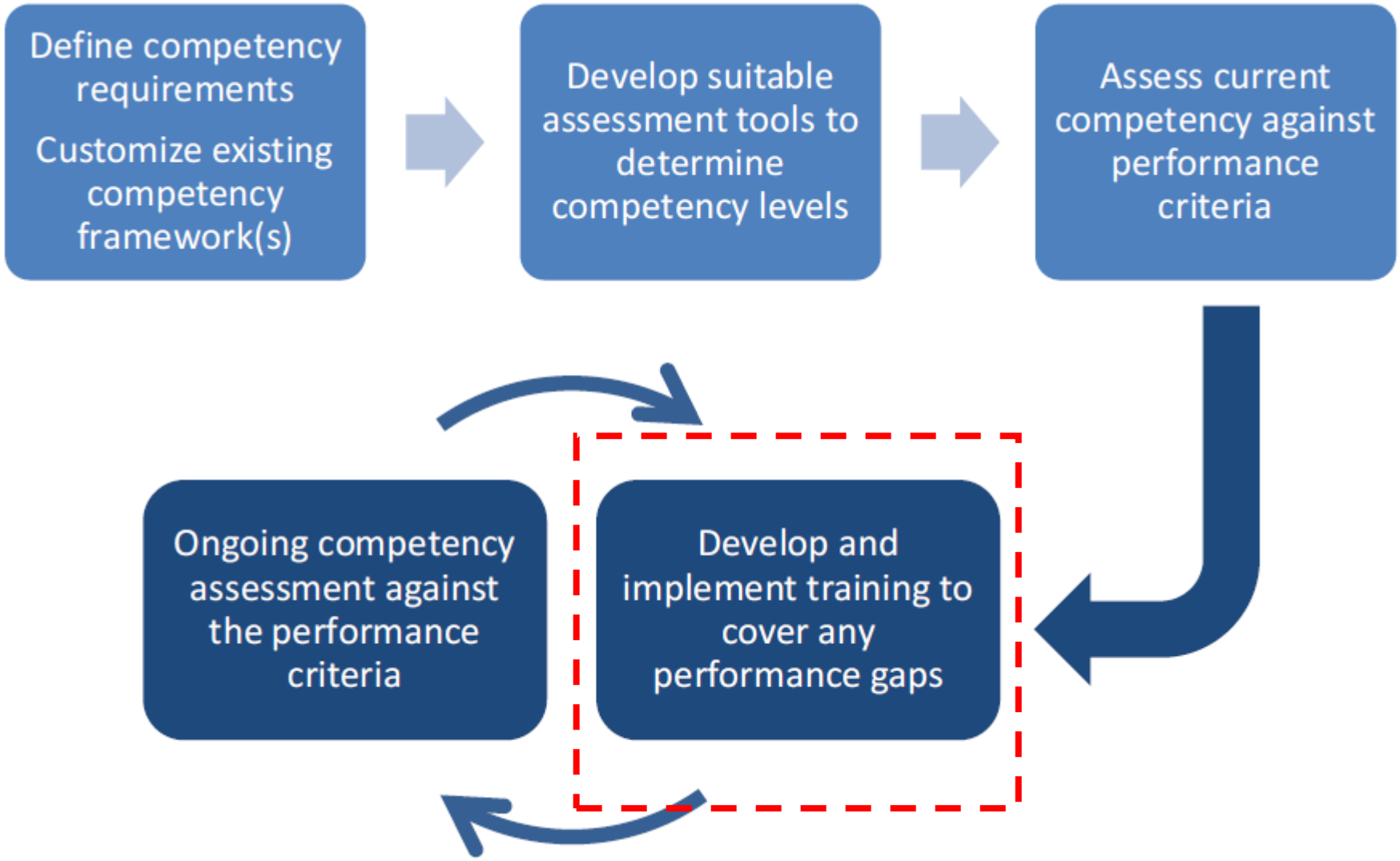


# Case Example

| | | |
|---|---|---|
| **Job Family/ Function** | **Meteorological Services - Climate/Weather Research** | |
| **Job Role** | **Principal Research Scientist** | |
| **Skills & Competencies** | **Functional Competencies** | **Proficiency Level** |
| | Scientific Communication | 4 |

| | |
|---|---|
| **Functional Competency:** | **Scientific Communication** |
| **Competency Description** | Disseminate scientific information in a clear and concise manner appropriate to the given audience leading to desired outcomes |
| **Learning/ Proficiency Level** | **Level 4** |
| **Knowledge** | 1. Potential risks associated with adopting research outcomes into national/public policies/strategies/ practices.<br><br>2. Processes and uses of knowledge synthesis, knowledge dissemination and implementation strategies, and integrated knowledge translation |
| **Ability** | 1. Develop scientific communications plan/programme integrating scientific information<br><br>2. Highlight key areas in a way that may influence policies, operations, and public education<br><br>3. Engage with media and public on scientific research/assessment matters independently<br><br>4. Engage a wide range of audience locally and internationally on scientific research/assessment matters |

# WMO's Ongoing Competency Process



# Approaches to Identify Learning Interventions

## Three Approaches to Identify Learning Interventions

### By **Job Role**

√: very customised to each job role

×: Inflexibility resulting from the need to go through the whole programme when job role changes

×: Duplication of learning content across different modules

### By **Key Task**

√: Very specific to each task

×: Duplication of learning content across different tasks because similar skill sets required

×: Many tasks (can be > 10 per job role)

### By **Competency**

√: Knowledge and skills learned to be applied to many key tasks

√: Flexible; only need to complete learning interventions for new competency if job role changes

√: Officers can focus on competencies that they are weak in

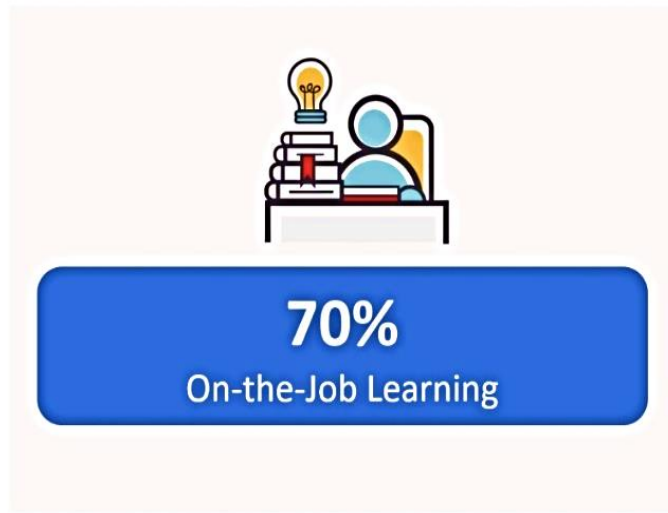
×: Some job families may have a large number of competencies
*[solution – grouping of similar competenices & learning levels]*

# 70-20-10 Methodology

Training is not the only development intervention to bridge a competency gap. Often, a combination of formal learning (10%), peer learning (20%), and on-the-job learning (70%) can drive learning transfer and develop your officers more effectively


The officer could be sent for training aimed at closing their competency gaps. However, as training tends to cater to a group and has limited contextualisation, it typically does not account for a large proportion of how people effectively learn.


Peers or supervisors can act as a coach or mentor to the officer to further hone his capabilities. This can happen before or after formal training, or through informal feedback.




On-the-job learning is considered the most effective way to develop a competency . Through projects, supervisors can monitor progress, provide guidance, and support the officer in reflecting on experiences and learning.

# 4 Q&A

# Our Environment

## Safeguard • Nurture • Cherish

National Environment Agency

Safeguard · Nurture · Cherish