



QMS Principles and the ISO 9001:2015 Standards

ICAO Secretariat

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Outline

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QMS Principles

02

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Risk- based Approach

Principles of Quality Management

What is a QM principle?

- A QM principle is a **fundamental rule** for leading, operating and developing an organization:
 - with the **objective** of continually improving performance over the long term;
 - through a **focused approach** to all stakeholders, particularly customers.





- Why do we need to imbed the principles of QM in MET QMS?
 - to provide for the quality management of the meteorological information to be supplied to the users
 - operators, flight crew members, air traffic services units, search and rescue services units, airport managements and others concerned with the conduct or development of international air navigation.
 - to provide a sound foundation for achieving the goals and objectives of WMO programmes, Member NMHSs and MET

Principles of Quality Management



Principles of Quality Management

There are seven principles of QM that provide a sound foundation for achieving goals and objectives.

These principles are not listed in priority order

It is important that the principles of QM form the foundation of an organization's QM approach to activities and delivery of products and services.



Each organization will need to apply the principles in terms of their own particular activities.

They should be woven into the processes, outcomes and overall culture of WMO programmes, and those of WMO Member meteorological, hydrological and other relevant agencies

01



Customer focus

meet customer requirements and to strive to exceed customer expectations
e.g. operators, flight crew members, air traffic services units

02



Leadership

create conditions in which people are engaged in achieving the organization's quality objectives

03



Engagement of people

Competent, empowered and engaged people at all levels throughout the organization are essential to enhance its capability to create and deliver value.

04



Process approach

Consistent and predictable results are achieved more effectively and efficiently when activities are understood and managed as interrelated processes that function as a coherent system

05



Improvement

Ongoing focus on improvement
Improvement is essential if the MET Service Provider is to **maintain its current levels of performance, respond to changes in the internal and external environment and create new opportunities.**

The success of a MET Service Provider is based on a **constant drive for improvement.**

06



Evidence-based decision making

understand cause-and-effect relationships and potential unintended consequences

Analysis of facts, evidence and data leads to greater objectivity and confidence in decision-making.

07



Relationship management

Interested parties influence the performance of an organization

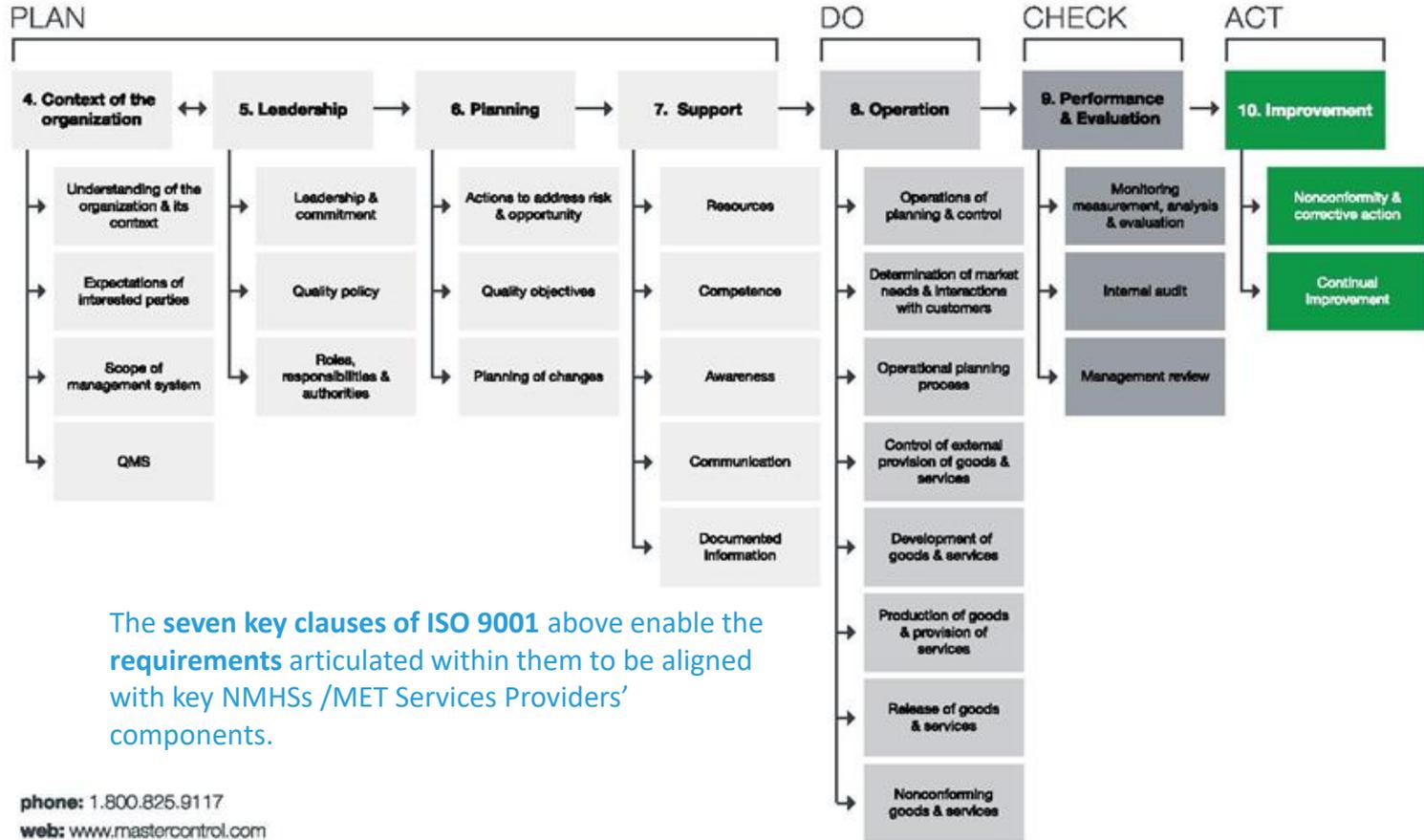
The MET Service Provider needs to identify the stakeholders to be taken into account and therefore distinguish between those stakeholders who are essential for its survival and those for whom maintaining the relationship is not seen as vital to its business.

The ISO 9001 standard provides an appropriate framework to implement the required change management processes

The 2015 ISO standard has 10 Chapters of Clauses

The 3 first Clauses describe the ISO 9001 Scope, the related normative references and standardized terms and definitions. Those Clauses are :

- **Scope**
- **Normative references**
- **Terms and definitions**



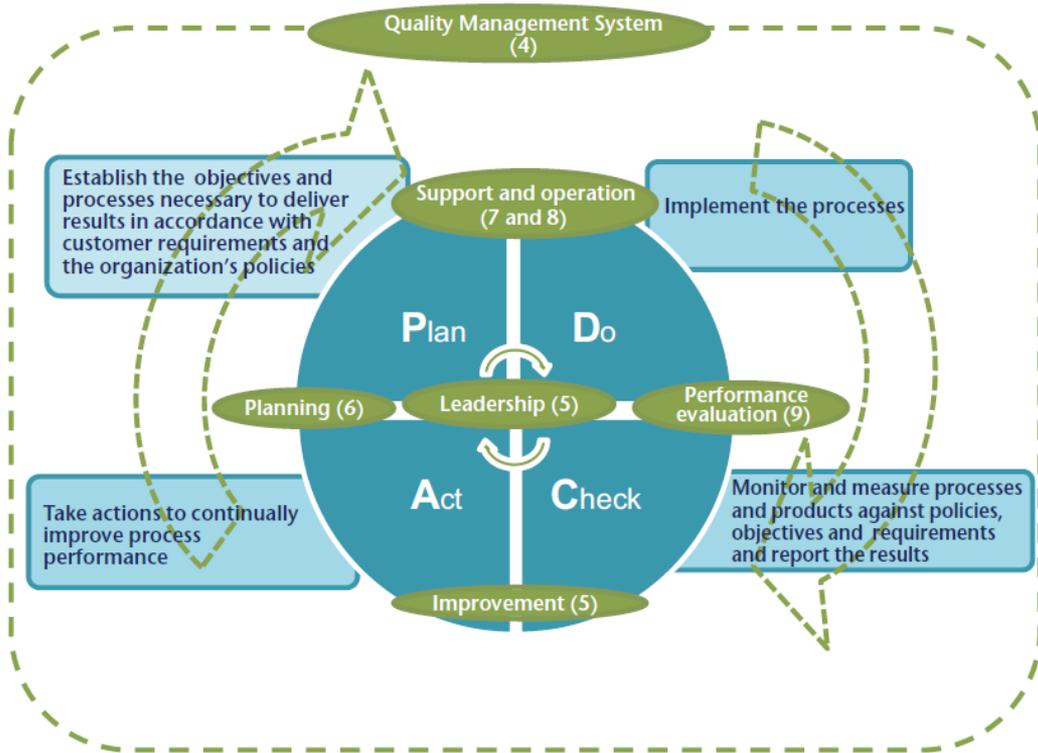
The **seven key clauses of ISO 9001** above enable the **requirements** articulated within them to be aligned with key NMHSs /MET Services Providers' components.

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Process Approach - the plan, do, check, act cycle

- Fundamental to ISO 9001:2015, and its predecessors, is a process approach that has been highlighted as one of the principles of QM.
- The process approach allows for the systematic identification and management of processes and their interactions in order to achieve the intended results in accordance with the organization's /MET Service Provider's policy and strategy.
- The Process Approach is based on **the Plan, Do, Check, Act (PDCA) cycle**.
- The plan, do, check, act (PDCA) cycle provides a methodology to assist in the **development and implementation** of process approach and is used to coordinate the efforts of NMHSs MET Service Providers to continually improve work processes .



The Plan, Do, Check, Act (PDCA) cycle

- A four-step management process typically used to implement QM.
- provides a methodology to assist in the development and implementation of the process approach
- To be covered in detail in the upcoming presentations.



What is risk-based thinking?

- The concept of risk has always been implicit in ISO 9001 – this edition makes it more explicit and builds it into the whole management system
- Risk-based thinking ensures **risk is considered from the beginning and throughout**
- Risk-based thinking makes preventive action part of strategic and operational planning



Where is risk-based thinking addressed in ISO 9001:2015 ?

- ISO 9001:2015, Introduction - the concept of risk-based thinking is explained
- ISO 9001:2015, Clause 4 - organization is required to determine its QMS processes and address its risks and opportunities
- ISO 9001:2015, Clause 5 – top management is required to promote awareness of risk-based thinking and determine and address risks and opportunities that can affect product /service conformity
- ISO 9001:2015, Clause 6 - organization is required to identify risks and opportunities related to QMS performance and take appropriate actions to address them



Where is risk-based thinking addressed in ISO 9001:2015 ?

- ISO 9001:2015, Clause 7 – organization is required to determine and provide necessary resources
- ISO 9001:2015, Clause 8 - organization is required to manage its operational processes
- ISO 9001:2015, Clause 9 - organization is required to monitor, measure, analyse and evaluate the effectiveness of actions taken to address risks and opportunities
- ISO 9001:2015, Clause 10 - organization is required to correct, prevent or reduce undesired effects and improve the QMS and update risks and opportunities



Why use Risk-based thinking?

Successful organizations /NMHSs /MET Service Providers intuitively apply risk-based thinking because it brings benefits that:

- **improve** governance
- **establish a proactive culture** of improvement
- **assist with compliance**
- **assure consistency of quality** of products and services
- **improve customer confidence and satisfaction**



How to implement Risk-based thinking?

- Identify what your risks are:
 - it depends on context
- Use risk-based thinking to prioritize the way you manage your processes
- ISO 9001:2015 does not require formal risk management
- ISO 31000 Risk management — Principles and guidelines may be a useful reference for organizations that want or need a more formal approach to risk (but its use is not obligatory)

How to implement Risk-based thinking? (Cont.)

- Balance risks and opportunities

- Analyse and prioritize your risks

what is acceptable?

what is unacceptable?

- Plan actions to address the risks

how can one avoid, eliminate or mitigate risks?

- Implement the plan; *take action*

- Check the effectiveness of the action; *does it work?*

- Learn from experience; *improve*

- *WMO N°1100 App. 9 and 22 provide guidances for implementing risks-based thinking.*

Consequence and likelihood tables – to be used in conjunction with the risk level matrix

(Adapted from ISO 31000:2009 (ISO, 2009b))

Consequence					
Type of impact	Negligible	Low	Medium	High	Extreme
Public image, internal and external stakeholder concerns and reputation	Minimal (or nil) effect on reputation Resolved through day-to-day management	Minor isolated concerns from the public, customers or management team Organization not seen as an employer of choice	Significant and sustained public client/stakeholder concern Adverse media publicity through real or perceived service failure	Major loss of confidence by key stakeholders including political intervention Organization subject to formal inquiry	Abolition of the organization or significant reduction in authority Inability to deliver on mission and objectives or government agreed outcome

Likelihood/probability (of consequences/impact)

Rare	Unlikely	Moderate	Likely	Almost certain
Could happen but probably never will	May occur only in exceptional circumstances	Might occur at some time	Will probably occur in most circumstances	Expected to occur

Source: Australian Government, Bureau of Meteorology (2015)

Risk analysis

Key

The relationship between consequence and likelihood determines the level of risk according to the key below, for example, a "medium" consequence with "moderate" likelihood equates to a risk rating of "significant".

	<i>Likelihood</i>		<i>Consequence</i>		
	<i>Negligible</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Extreme</i>
Almost certain	Significant	Major	High	Severe	Severe
Likely	Moderate	Significant	Major	High	Severe
Moderate	Low	Moderate	Significant	Major	High
Unlikely	Negligible	Low	Moderate	Significant	Major
Rare	Negligible	Negligible	Low	Moderate	Significant



- **Seven quality principles** to set up a framework for developing the QMS.
- **Seven ISO 9001:2015 Clauses that enable requirements** to be aligned with the NMHSs /MET Service Providers Components.
- The **PDCA cycle to implement the process approach** and the **continuous improvement process**
- **Risks-based thinking** to mitigate the risks related to Met QMS.

Questions??

01

Answer 1

02

Answer 2

03

Answer 3





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