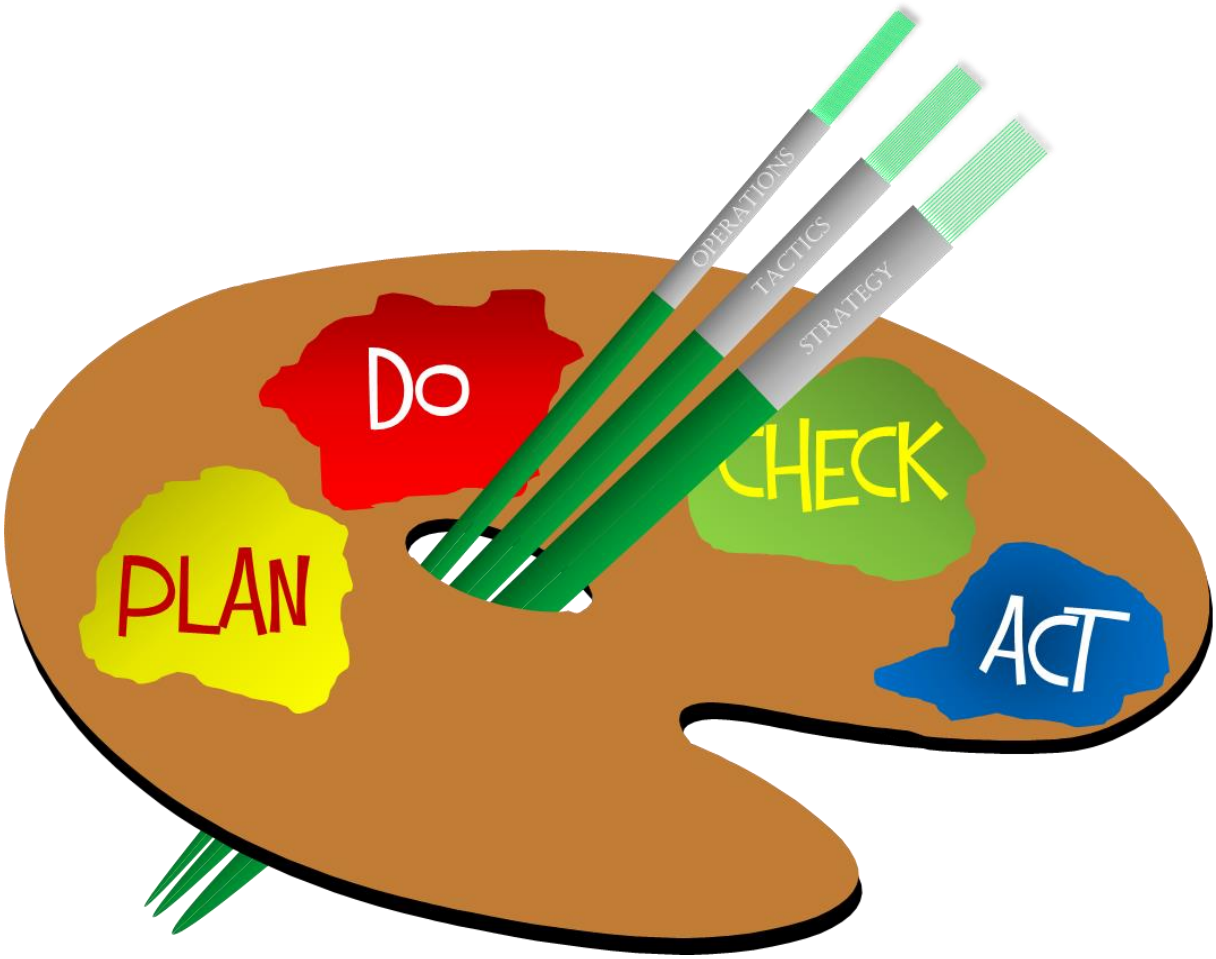
Integrated Management Community

MANAGEMENT SYSTEM

SPECIFICATION AND GUIDANCE

MSS 1000:2023



FACILITATING THE CREATION OF

MANAGEMENT SYSTEMS WITHOUT BOUNDARIES

Executive Summary

MSS 1000:2014 is a universal management system standard enabling organisations to create fully integrated management systems directing and guiding their total strategic, tactical and operational management processes. It avoids the need to comply with multiple management system standards covering separate aspects of performance such as goods and services quality, health and safety, environment and security. Commercial and human resource aspects are also covered that are not normally explicitly addressed in management system standards.

Options are provided to self and externally certify against the standard and achieve bronze, silver and gold award. It has an integral innovative scoring system that enables the organisation to gauge its progress against the standard and to conduct internal and external performance benchmarking.

The MSS 1000:2014 document contains nearly 300 pages. However, the requirements for compliance are contained within the 60 pages occupied by sections B and C, the rest of the document is supporting information and guidance. Appendix 8 provides advice on getting started with this MSS.

The MSS was written by an international team of integrated management experts to:

- Support the significant demand for integrated management systems which has grown significantly since the turn of the millennium,
- Demonstrate to doubters that a universal management system standard is possible and practicable,
- Act as a robust foundation to stimulate further research, innovation and continual improvement in the practice of integrated management.

MSS 1000 transcends silos and fragmented management approaches allowing disparate disciplines to jointly own and cooperate in the creation of an integrated management system fully focused on optimally delivering the organisation's purpose through its structures and processes rather than attempting to independently manage multiple dimensions of performance.

Implementing MSS 1000 will significantly improve:

- Stakeholder satisfaction while making the best use of resources,
- The effectiveness, efficiency and control of the organisation's structures and processes,
- Prospect and risk management,
- Commercially responsible and socially responsible performance,
- The organisation's robustness, agility and resilience.

The widespread adoption of this MSS can make a significant contribution to global economic, social and environmental performance and its sustainability.

Dedication

This management system specification is dedicated to all those who act and labour selflessly for others and the common good including those as yet unborn that will follow the same path.

Copyright

Feedback

We see further because we stand on the shoulders of those who have gone before us (Isaac Newton). One of the goals of creating this MSS is that it should be owned and shared by all of its stakeholders and act as a framework for facilitating the free flow and exchange of ideas and good practice. Feedback and suggestions are warmly welcomed with respect to the content, application, and exploitation of this MSS. Please visit the web site www.integratedmanagement.info.

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Preface

The principal objective of this management system specification (MSS) is to provide instruction and guidance on designing and implementing fully integrated management systems that attempt to optimise the functionality of the whole of an organisation. This is achieved by organizing the collective thought and action of the organisation's directors, managers and workforce, to equitably satisfy the needs and expectations of its stakeholders, while making the best use of resources. Integrated management systems do not recognise artificial and restricting management boundaries or silos. However, the MSS can still be used for existing or planned partial management systems and assist in aligning their structure for future integration.

> *"It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than a new system. For the initiator has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who gain by the new ones. " — Niccolò Machiavelli*

The MSS has been created by an international team of Integrated Management Community (IMC) experts. The specification is not just the merging of existing standards but has been based on universal management principles. This has the effect of shifting the principal focus of management from multiple discrete facets of performance, such as goods and services quality, people protection and nurture, environmental protection, and security etc., directly onto the organisation's structures and processes that deliver its purpose, where all aspects of performance emerge, and of critical interest to stakeholders. The MSS includes both compliance requirements and guidance on how to optimize the equitable satisfaction of stakeholders' needs and aspirations while making the best use of resources, which is the foundation of integrated management.

The MSS is intended to provide organisations with a one-stop alternative to the current multiple management system standards that each focus on a different facet of organisation performance. This should stimulate much needed continual improvement of management system standards in the marketplace. It should facilitate the creation of fully integrated management systems that not only cover the content of existing management system standards but also address the commercial and human resource issues in a fully integrated way going beyond simple alignment. This empowers organisations to bring all of their functionality within the scope of a fully integrated management systems that seamlessly spans all aspects of strategy, tactics and operations. This will nurture a culture of joined up: thinking, decision making and action, throughout the organisation from top management down to task level.

It has been the practice of many organisations to restrict the scope of their formal management system or systems to goods and service quality, health and safety, and environmental protection, and to exclude human resource and commercial processes. This MSS provides the opportunity to create fully integrated management systems that address the whole organisation in a truly joined up and coherent way and avoid the need to comply with multiple diverse management system standards. This enables better deployment of valuable finite management resources and empowers an organisation to improve its effectiveness, efficiency, innovation, robustness, agility and resilience. It is able to experience the synergistic benefits of coherent management structures and processes. Independent surveillance and certification processes are empowered to add more value through being more effective and efficient.

'Plan-Do-Check-Act' is a management and learning cycle that humankind individually naturally do to varying degrees of competence but it does not happen naturally in a super organism, which we refer to as organisations – it has to be orchestrated via a management system. A fully effective, efficient, agile and resilient integrated management system has the capability of promoting and facilitating the optimal functioning of 'Plan-Do-Check-Act' throughout an organisation at every level. Its effective establishment becomes an indicator of high performance providing stakeholder confidence and satisfaction.

The MSS is an important innovation empowering organisations to gain valuable new management experiences. It is hoped that it will stimulate further creative thinking and research and help drive continual improvement in the understanding and application of management systems fit for the 21st century. The MSS can universally benefit every size and type of organisation and is why it is freely accessible via the World Wide Web, inspired by its inventor Sir Tim Berners-Lee.

A. Introduction

The purpose of a management system standard or specification is to define good practice that should ideally be incorporated into a management system to achieve a specific functionality. However, no management system standard or specification can guarantee the success of an organisation. The purpose of a management system is not to turn people into compliant automatons but to provide a coherent framework of direction and guidance enabling them to operate, individually and collectively in an optimal way.

This management system specification (MSS) has been defined to enable organisations to design single fully integrated management systems with the objective of optimising the functionality of the whole of an organisation based on the universal principles of integrated management. This MSS defines the minimum set of arrangements and methodologies to be established within the management system to act as a springboard for the organisation to continually improve and stay aligned with its customer and other stakeholders' evolving needs and expectations. These features and principles provide confidence to stakeholders that it is fit for purpose by promoting a systematic and integrated approach to management. By promoting orderliness and coherent, effective and efficient processes the organisation becomes more agile and creative in the delivery of its purpose.

This document cannot cover all of the circumstances that may be encountered within organisations. Every user must interpret the requirements according to the particular circumstances of the organisation and identify "what", "how", "where", "who", "when" and "why", as applicable. The seventeen principles underpinning the philosophy of this MSS are listed in A.6 Management Principles.

Compliance with this standard will demonstrate that the organisation is systematically striving to implement the following values and principles that are defined within its policy – refer to C.1.3 Policy statement.

a) Equitably satisfies the needs and expectations of stakeholders making the best use of available resources,
b) Executes responsible, transparent and compliant commercial transactions,
c) Delivers high-quality goods and services,
d) Protects and nurtures people,
e) Protects and nurtures the environment,
f) Optimises the functionality of Plan-Do-Check-Act management cycles throughout the organisation at every level to drive a continual process of experiential learning, improvement and alignment with evolving stakeholder needs and expectations.

The MSS uses a set of universal rationalised definitions that attempt to transcend the terminology of individual management disciplines – refer to Definitions.

The remainder of this introduction contains the following subsections:

- A.1.1 Context of a Management System
- A.1.2 Plan-Do-Check-Act
- A.1.3 Universal PDCA Twelve Element Structure

A.1. MSS structure

There are three principal factors that have determined the structure of the MSS and are shown diagrammatically in Figure 1: MSS Structure Principal Influencers and are as follows:

a) A set of basic management principles defined in section A.6 Management Principles,
b) Generic Plan-Do-Check-Act closed loop management cycles required to be performed throughout the organisation at all levels as described in section A.1.2 Plan-Do-Check-Act,
c) Management system good practice and knowledge, which populates the Plan-Do-Check-Act structure using a twelve element hierarchical taxonomy.

This MSS document contains the following principal sections covering the standard and integrated guidance:

A. Introduction
B. General Requirements
C. Specific Requirements
D. General Requirements Guidance
E. Specific Requirements Guidance

It also contains a Concise Table of Contents, a Full Table of Contents, a Preface, a Bibliography, an Index and Appendices.

Sections C. Specific Requirements and E. Specific Requirements Guidance, are subdivided into identical Plan-Do-Check-Act structures addressing the twelve principal element management topic taxonomy adopted by this MSS. It is intended to create logical orderliness and may if desired be carried over into the structuring of the organisation's management system.

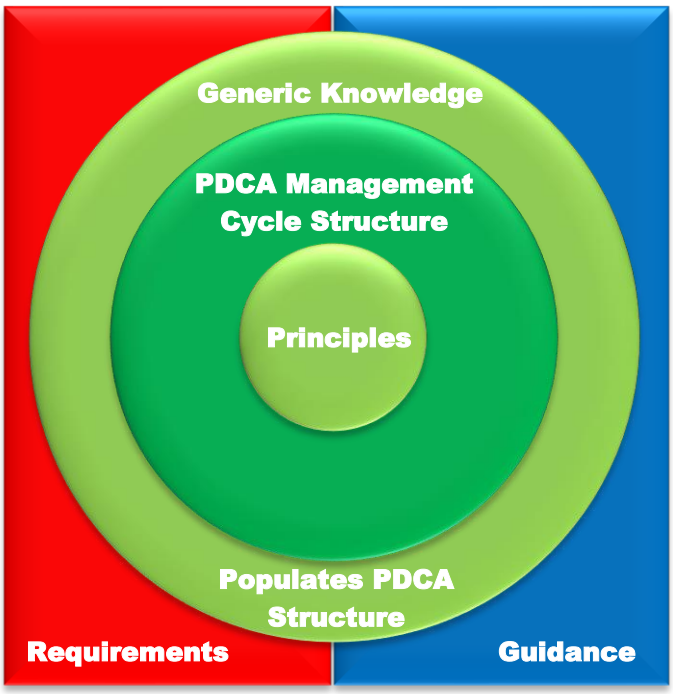


Figure 1: MSS Structure Principal Influencers

Extensive cross-references demonstrate the interdependency between the various requirements of the MSS and the resultant management systems.

A.1.1. Context of a Management System

The understanding of this section is not essential to applying the MSS requirements but it may help in understanding their rational.

A well-structured and mature management system is one of the most valuable assets of an organisation and it helps to understand the context of a management system in relation to the management of an organisation as a whole and the other key elements that it interacts with. Although the nature and functioning of organisations are extraordinarily complex in reality, it is possible to gain valuable insights via simple conceptual models that aid their understanding and management. A particular high-level conceptual model of an organisation is shown pictorially in Figure 2: Context of a

management system. The purpose and nature of the elements together with their overall interacting dynamics will be briefly explained in the following subsections to help put the concept of a management system into the overall context of the management of an organisation.

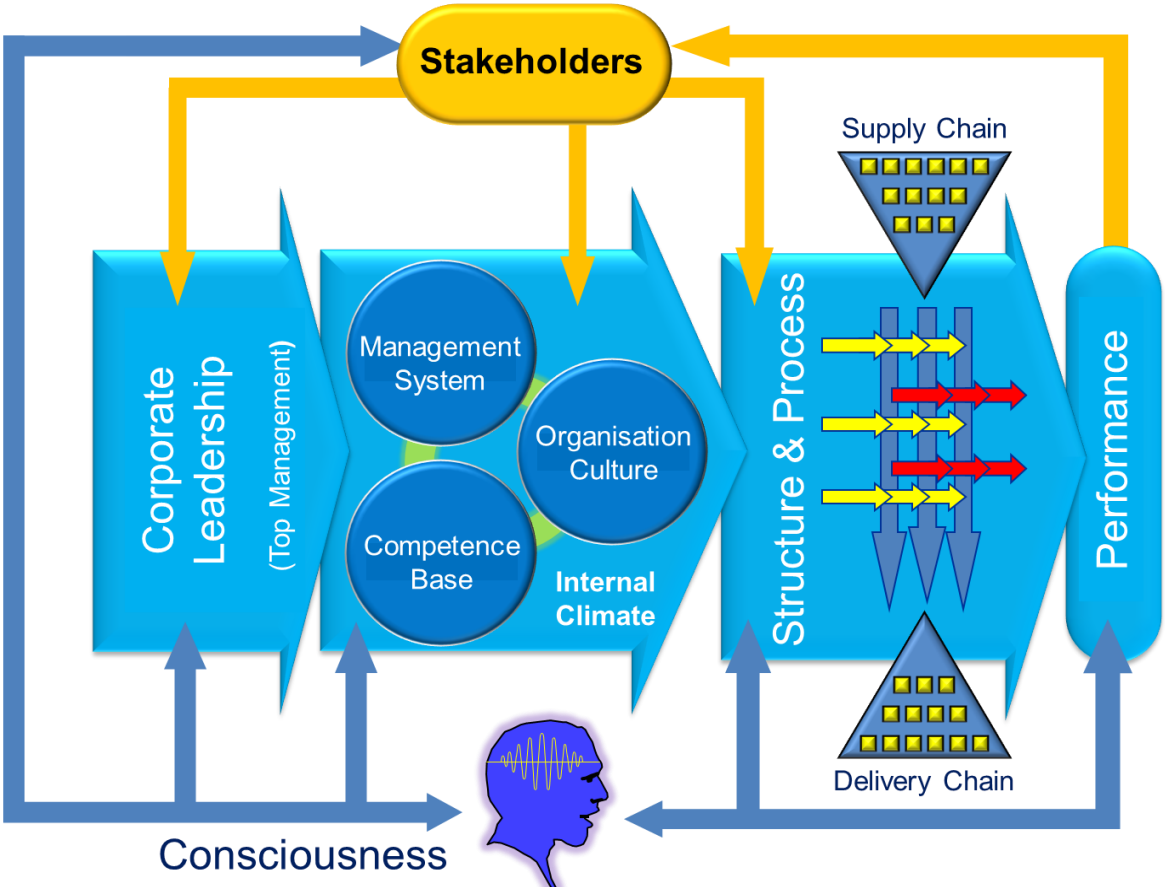


Figure 2: Context of a management system

In smaller organisations, the roles may be performed by the same person.

All of the elements in Figure 2: Context of a management system, have been subject to management research and are capable of being measured despite the commonly held view that they are abstract and difficult to understand.

A weak functionality in one area of the overall functionality of an organisation will not generally be compensated by a strong functionality in another area – an organisation is in general no stronger than its weakest link. While the management system is extremely valuable to an organisation it must be fully supported by its other elements. The elements are described in more detail in the following subsections:

- Structure and process
- Performance
- Internal climate
- Management system
- Competence base

- Organisation culture
- Corporate leadership
- Stakeholders
- Consciousness
- Organisation dynamics

Structure and process

Structure and process exist to deliver goods and/or services to customers thereby fulfilling the purpose of the organisation. Value is added by the core structures and processes sandwiched between the organisation's supply chain and its customer delivery chain. Core structures and processes are in turn supported by supporting structures and processes. Contingency structures may also exist to takeover or provide assistance when core or supporting structures and processes fail or otherwise become dysfunctional or the organisation or a project becomes threatened.

Structures host the processes that transform inputs into outputs and typically include:

- People (tacit knowledge - employees, contractors, visitors),
- Commerce (relationships, agreements, contracts, regulation),
- Data (information, virtual assets, explicit knowledge,
- Energy and matter (land, buildings, plant, equipment, machinery, vehicles),
- Suppliers of goods and services,
- Goods, services and various forms of waste.

Structures and processes should ideally all add optimal value separately and collectively as a whole. This is often conceptually understood as value adding chains linking the supplier inputs to the organisation's output to its customers.

The most critical elements of structures and processes are people and it is their behaviour that is influenced by the elements shown to the left of structure and process on Figure 2: Context of a management system.

Performance

The performance of structure and process is the measure of the satisfaction of the organisation's customers and other stakeholders, which are generally evolving and often becoming more sophisticated and demanding. Requirements for performance may be shared or may differ amongst the customers and other stakeholders.

General ideal performance is total realization of the organisation's policy, strategic plan and objectives, including total satisfaction of the stakeholder's needs and expectations while making the best use of resources. This ideally results in:

- High profitability,
- Safe and nurtured personnel, assets and environment,
- Zero unplanned events (including accidents and near misses).

Uncertainty pervades everything to some degree and performance cannot be guaranteed. However, attempts to optimize performance can be made through carefully managing prospects and risks.

Internal climate

In a similar way to a weather climate dictating what will grow and flourish on land located in different parts of the world, an organizational climate supports and nurtures an organisation's structures and

processes ability to deliver the performance required by its customers and other stakeholders. The internal organisation climate comprises three closely interacting components which direct, guide and support the human behaviour that manages and participates in processes:

- Management system,
- Organisation culture,
- Competence base.

These three interacting organizational elements are elaborated in the following three sections.

Management system

The management system comprises the organisation's policy, responsibilities, structures, procedures and rules, and collectively defines the way that the organisation's structures and processes are to be established, maintained, and operated and where necessary changed. Without a management system the organisation's managers have to decide what should be done uniquely in every situation and constantly seek direction, guidance and approval from superiors which makes the management process ineffective and inefficient.

A management system:

- Allows directors and managers to establish generic approved direction and guidance supporting managers and personnel at all levels,
- Free up management resource to focus on the development of the organisation,
- Acts as a defined basis for review and action to improve and remain aligned with customer and other stakeholder evolving needs and expectations.

Compliance with the management system and the efforts made to improve it are strongly influenced by the alignment of the organisation culture with performance supporting behaviours. Personnel may either fail to comply with the management system through ignorance, human error or human violation.

The ability to design, implement and maintain effective and efficient management system depends on the competence base of the organisation accessed internally or externally.

A good management system shapes organisation culture by directing, guiding and nurturing performance by supporting positive behaviours and practices which staff later learns to value. For example, if the management system requires a periodic activity such as project induction and briefings, over time the activity will tend to become a natural one, and will become absorbed into the organisation culture.

A successful management system implementation critically depends on corporate leadership and commitment but cannot be orchestrated by the management system. The MSS does not therefore contain any requirements for corporate leadership commitment – a successful management system implementation is the demonstration of corporate leadership commitment.

Advanced management systems also have an integral self-referral aspect that manages its own change and evolution. This is the reason why one of the MSS elements addresses the management of change including the management system.

Competence base

The competence base that an organisation has access to (either directly within the organisation, or indirectly outside the organisation) is of critical importance. The effective conduct of prospect and risk assessments and the application of appropriate management control depends on a sound understanding and experience of the relevant laws of nature that govern the performance of the organisation's structures and processes.

A suitable and sufficient competence base is also a prerequisite for establishing an effective and efficient management system.

The competence base needs to evolve over time to support the evolving needs of an organisation and its evolving management system.

When establishing structures and processes, or modifying them, care must be taken always to act within the competence base, and not turn structures and processes into uncontrolled experiments.

The organisation culture should include a strong resistance to gambling when the implications of a proposed structure or process change are not fully understood.

Organisation culture

Organisation culture comprises the shared: attitudes, perceptions, beliefs, values, social behaviour, and accepted work practices or norms. It is a natural manifestation where there are groups of people and is socially driven. People naturally desire to conform to group norms to gain acceptance by the group and receive its benefits.

A performance supporting organisation culture is one in which all staff, from top level management to individual workers; share a commitment to work in a way that positively promotes all facets of the organisation's performance.

Sub-organisation cultures may exist within the overall organisation culture where the aspects are shared by a particular subgroup.

Organisation culture is shaped by all of the other organizational components in Figure 2: Context of a management system, but cannot be directly managed or imposed in a similar way to a management system. A performance supporting organisation culture can only be nurtured by directing and encouraging performance supporting human behaviours via visible and clear corporate leadership and strict compliance with the management system which is administered firmly and justly.

Corporate leadership

Corporate leadership is exercised by the top management at the most senior level of an organisation, typically by the directors and CEOs – it is the directing mind of the organisation. It expresses the vision of the organisation's future, and initiates, plans and resources its overall direction to fulfil its vision and purpose.

Corporate leadership impacts the management system, the organisation culture and the competence base by formulating a corporate vision, strategic plan and objectives. Corporate leadership

commitment is demonstrated by the establishment of an effective internal organisation climate comprising the management system, competence case and organisation culture.

Stakeholders

The organisations stakeholders are the people and bodies that have an interest in the performance of the organisation and reside within and outside of the organisation. Stakeholders typically include customers, suppliers, employees, society, government, regulators, shareholders, contractors, partners, banks, insurers etc.

The needs and expectations of stakeholders may coincide or conflict. The challenge for organisations is to equitably meet the needs and expectations of stakeholders while making the best use of resources.

Customers are critically important to maintain commercial trading fulfilling the purpose of the organisation but other stakeholders such as insurers, banks and regulators can be equally powerful and stop an organisation's operations immediately.

Consciousness

Consciousness is the most abstract of the organizational elements and therefore generally the least understood despite its critical importance to individual and group performance. Management is conducted on the level of consciousness, which is the home of thought, judgement and decision-making. Consciousness is the foundation of all of the other organisation components contained in Figure 2: Context of a management system. It is because humankind is conscious that they are able to attempt to understand the world they inhabit and manage the exploitation of its resources. Organisations would not be continually created and sustained delivering valuable goods and services if it was not for consciousness that is the foundation of all creativity - humankind is able to envision something before its creation. Stakeholders are only able to form a view of an organisation because they are conscious human beings. Being conscious means being able to receive data via the senses and understand one's environment, being aware of needs and expectations, being able to think and make decisions or execute an action that influences an organisation. Commercial activity is fundamentally an interplay on the level of consciousness.

Consciousness is ideally - alert, intelligent, understanding, empathetic, compassionate, flexible, positive, creative, questioning, responsible etc. It is threatened by stress, fatigue, alcohol, drugs and ill health. A key characteristic of consciousness is its self-referral nature, which allows consciousness to know itself e.g. humans have the ability to doubt their own existence, which any inanimate object, machine or computer cannot.

The level of consciousness of a person forms a spectrum from the person who behaves in a totally self-serving way (unethical and/or criminal) to a fully enlightened person who always thinks and acts for the greater good. Higher levels of consciousness can be nurtured by good management practice and personal self-development.

Organisation dynamics

In practise, all of the organisation's components are continually interacting in a very complex way and it is not always clear what is happening when problems occur or an event is being investigated. to

manage effectively and resolve organizational weaknesses it is essential that all of the organisation's dynamic components are addressed including; the management system, the organisation culture, the knowledge-base, the corporate leadership, the organisation's consciousness, and the stake-holder needs and expectations, as applicable. This enables the organisation's management to take control of its strategic, tactical and operational processes.

Unlike the other components (except consciousness), which may change or be rapidly changed in a very short time period, organisation culture evolves very slowly over several years. Because the nature of organisation culture inhibits change, it resists positive change but helps stabilise it once it is attained.

In contrast to the nature of organisation culture, the following are examples of how the non-organisation culture components may change rapidly:

- A management system can be changed by simply signing and distributing a new document,
- The competence base can be extended by the employment of a new specialist,
- Top management may change following an organisation take-over,
- A stakeholder may enact new legislation on a given day,
- Consciousness changes throughout the day, e.g. night-work is different to day-work.

Consciousness is unusual because it is subject to long-term change as well as short-term transient change.

A.1.2. Plan-do-check-act

Plan-Do-Check-Act (PDCA) is a cycle that individual people naturally follow to varying degrees of competence. PLAN is the preparation for doing something. DO is the execution of the PLAN. CHECK is monitoring to confirm the PLAN is being properly followed during DO and that nothing unexpected occurs. Finally during ACT a review of PLAN, DO and CHECK processes is conducted to see if the approach used can be improved the next time around plus agreeing actions to make it happen.

PDCA is therefore a natural potentially universal cycle of continual learning and continual improvement applicable to organisation strategy, tactics and operations. The fourth element ACT can also be conducted proactively to ensure that the organisation remains aligned with future stakeholder needs and expectations by trying to anticipate future likely innovation and change.

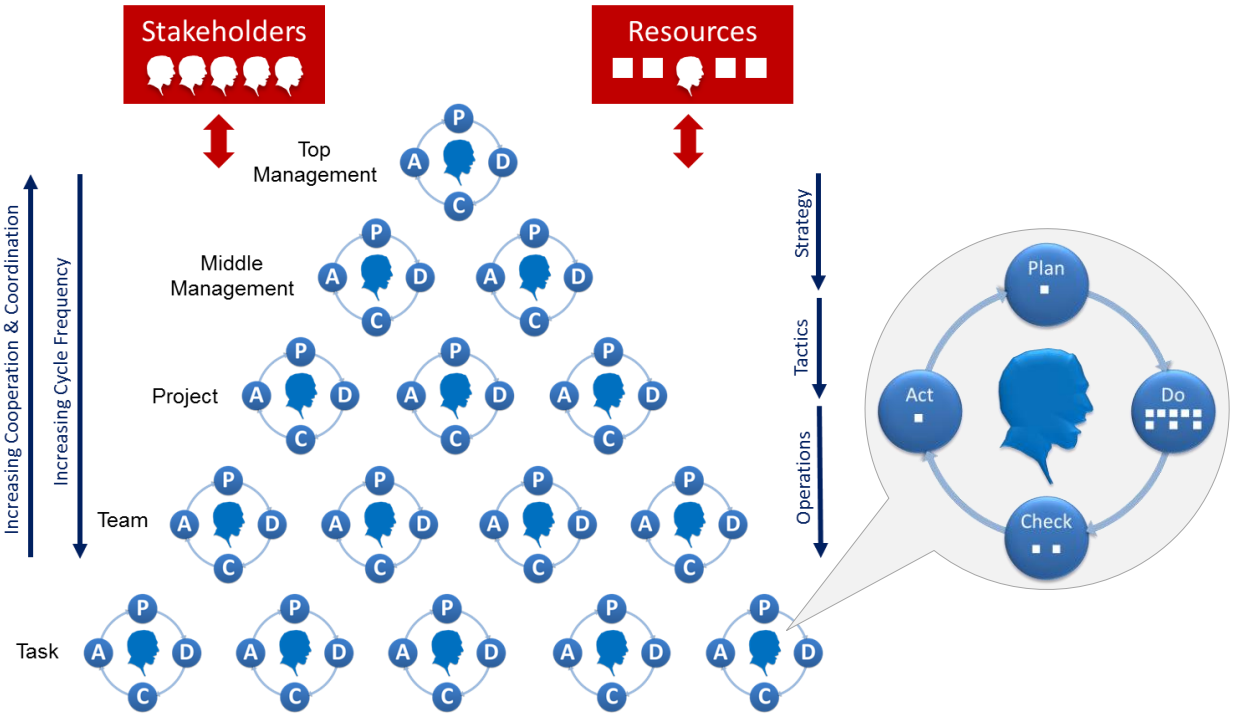


Figure 3: Universal Plan-Do-Check-Act throughout an organisation

It should be noted that while PDCA tends to be natural in individuals it is not natural in organisations and needs to be orchestrated via a management system, which needs to be formalised for anything other than small simple organisations.

The aim of this MSS is to optimally and harmoniously establish PDCA throughout an organisation at every level to equitably satisfy the stakeholder needs and expectations making the best use of resources including people, finance, data, matter and energy, and suppliers – refer to Figure 3: Universal Plan-Do-Check-Act throughout an organisation. It should be noted that the PDCA management cycle tends to be more dynamic towards the lower levels of the organisation and the need for cooperation and coordination of activities tends to increase towards the higher levels of the organisation.

A.1.3. Universal PDCA twelve element structure

These four Plan-Do-Check-Act elements are further expanded into the twelve elements shown in Figure 4: Universal Plan-Do-Check-Act Twelve Element Structure. These represent twelve logical hierarchical structures used to structure the requirements and the guidance contained within this standard and may also be used to similarly structure an organisation's fully integrated management system if desired.

The substructures of each of these twelve elements are shown in figures at the start of each of the twelve sections of part E of the MSS – refer to List of Figures.

Plan

Element 1 covers the analysis and synthesis processes required before the execution of the tasks or processes. It includes foundation planning, strategic planning, formulation of policy and objectives, identification of applicable legislation and standards, and prospect and risk assessment.

Do

Elements 2 to 9 comprise eight elements, each defining a specific area requiring management control and guidance. Elements, 2 to 5, cover personnel, commerce, data, energy and matter, and suppliers, and represent the five general ingredients of an organisation's structures and processes. Element 6 covers the normal structures and associated normal processes that deliver the purpose of the organisation. Element 7 covers contingency structures and processes that need to be initiated when normal structures and normal processes become dysfunctional or abnormal situations need to be managed. Element 8, the final one within this group, covers the systematic management of temporary and permanent change including changes to the management system.

Check

Elements 10 and 11 address reactive and proactive management processes. Element 10, reactive investigation, involves the reporting and analysis of internal and external events, including near misses so that the organisation may learn from them. Element 11, planned monitoring, involves activities such as audits, inspections and benchmarking, and are used to confirm that the 'Plan' has been implemented, is being complied with and is delivering its intended performance. Both of these elements are important, complementary and provide data for lagging and leading key performance indicators.

Act

Element 12 covers the review of all aspects of the organisation's performance and the assignment of actions to drive continual improvement and alignment with its stakeholders evolving needs and expectations.

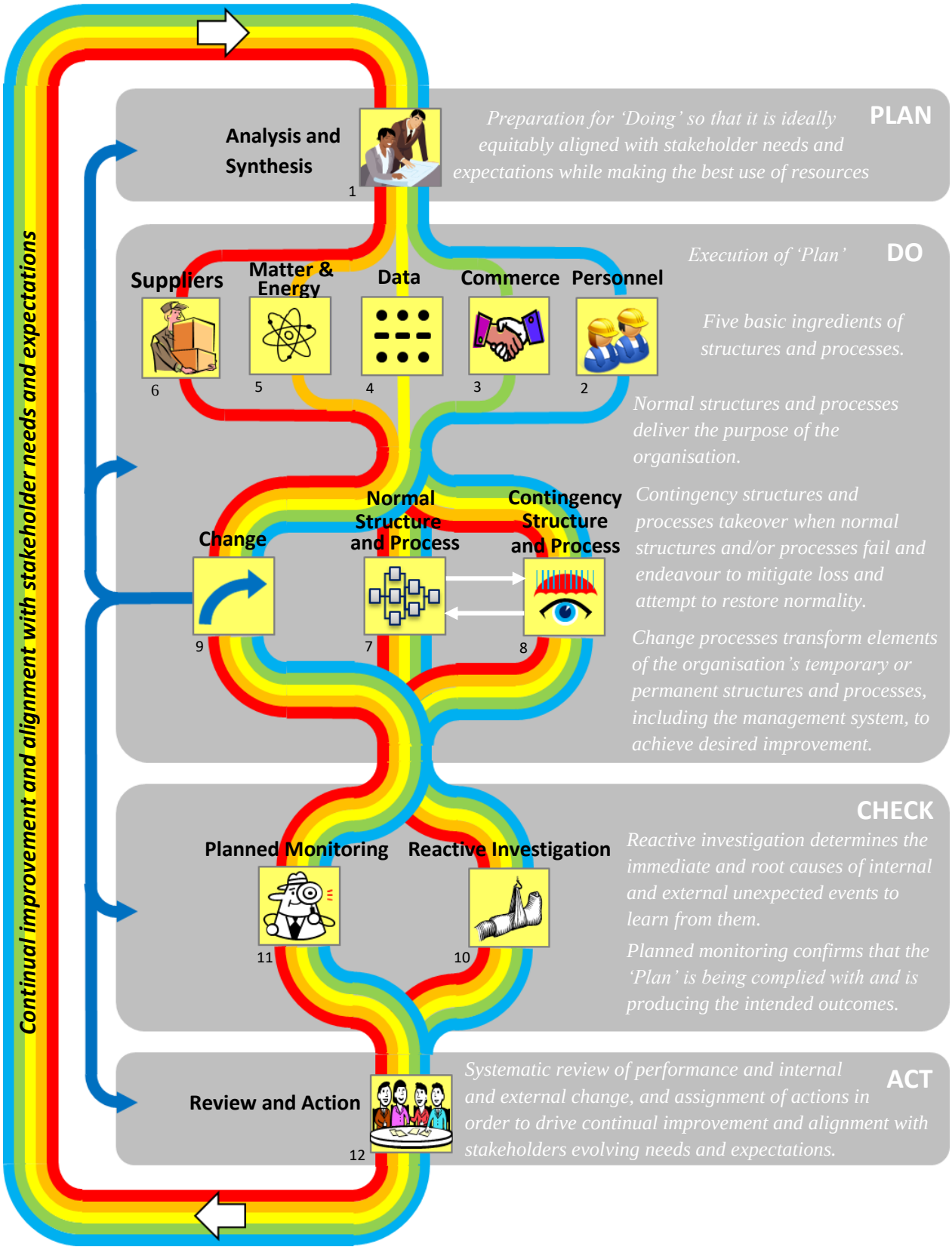


Figure 4: Universal Plan-Do-Check-Act Twelve Element Structure

The purpose of each of these twelve elements is further elaborated during the introductions to twelve subsections of section E. Specific Requirements Guidance. Refer to Concise Table of Contents.

A.2. MSS navigation

This document may be navigated in paper or electronic form via the Table of Contents or Index although it is recognised that its predominant use will be in electronic form, which offers enhanced functionality. The electronic version has extensive hyperlinking that significantly aids navigation and assists the user to focus on what is immediately needed within the MSS. It is a large document containing a large amount of material supporting the requirements section.

It should be noted that whilst the concise table of contents, full table of contents, list of figures and list of tables contain embedded hyperlinks, the index only supports navigation via the page numbers.

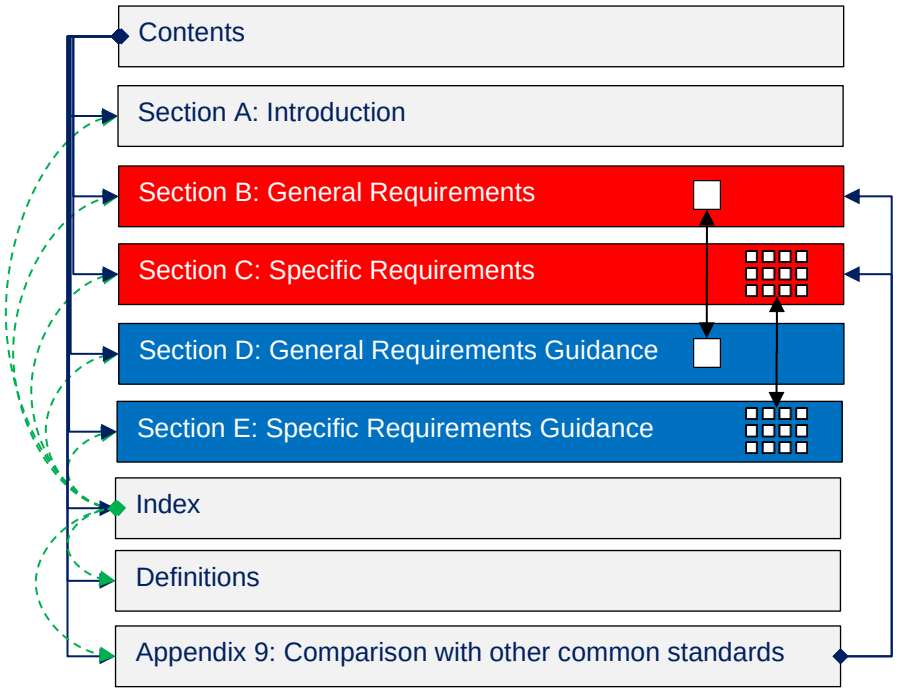


Figure 5: MSS Navigation

Paragraphs in the standard requirements sections (General Requirements and Specific Requirements) and the corresponding guidance sections (General Guidance and Specific Guidance) can be toggled via hyperlinks that have been inserted at the start of the paragraphs. These links are indicated by the symbols ∞ and < corresponding to the standard requirement and guidance respectively.

Links to definitions have been created throughout the document and compound definitions contain links to definitions of elemental components forming a hierarchy.

Users familiar with other commonly used standards may find it helpful to consult Appendix 9 and having located the section of the familiar standard; use the hyperlink within the MSS column to locate the requirements in section B or C of this document.

The MSS contains embedded electronic bookmarks facilitating direct access to the MSS sections via hyperlinking from external documents and databases.

The IMC website has an embedded PDF application facilitating the exploitation of all the above features.

A.3. MSS scope

This MSS is applicable to all types and sizes of organisation and covers all facets of organisation performance that may potentially impact stakeholder needs and expectations. A business aims to be

profitable while other organisations such as a charity or regulatory body must be commercially viable. It covers the commercial aspects of all types of organisation. Some clauses of this MSS are exempt for certain sizes of organisation – refer to section A.5.3 Organisation size automatic clause exemptions.

A.4. Covert management arrangements

Formal covert arrangements are addressed within this MSS to achieve security from conflicting stakeholders and malevolent threats. Sections B General Requirements and C Specific Requirements contain requirements that may need to be applied covertly. The following sections address such requirements:

B.3 Stakeholder specific requirements,
C.1.1 Foundation planning,
C.1.3 Policy statement,
C.1.6 Prospect and risk assessment,
C.1.6.1 Prospect and risk assessment planning,
C.2.2 Responsibilities and authorities,
C.2.5.2.2 External communication, consultation, participation and reporting,
C.4.1 Management system structure,
C.4.2 Data Control,
C.4.2.10 Data Access,
C.10 Reactive Investigation,
C.11 Planned monitoring.
C.12 Review and Action and subsections.

A.5. Compliance, certification and scoring

The MSS facilitates compliance scoring, the award of bronze, silver and gold compliance levels and independent third party certification covered in the following subsections:

A.5.1 Compliance scoring system,
A.5.2 Compliance award levels,
A.5.3 Organisation size automatic clause exemptions,
A.5.4 Certification.

A.5.1. Compliance scoring system

A compliance scoring system is defined in Appendix 1: Compliance Scoring System and permits the computation compliance scores and minimum and maximum scores for an organisation or a project following an audit. Only the sections of the MSS that are applicable are scored.

NOTE: Minimum scores are critically important because the effectiveness of a management system depends on the collective functioning of all elements defined within this standard and a weak functionality in one area will not generally be compensated by a strong functionality in another area – an organisation is in general no stronger than its weakest link.

The scoring system is used in the determination of bronze, silver and gold award levels covered in section A.5.2 Compliance award levels and may also be used in benchmarking as per section C.11.6 Survey and benchmarking.

A.5.2. Compliance award levels

This standard permits compliance at bronze, silver and gold levels shown diagrammatically in Figure 6: Compliance Award Levels, which respectively correspond to a basic, good and excellent implementation of a management system with respect to the effectiveness and efficiency functionality creating orderliness and the degree that the management of the organisation is of management structures and processes. All levels require legal compliance.

The silver level generally requires a demonstration of commitment and compliance to commercial responsibility, and the gold level requires a commitment and compliance to social responsibility. The level of award depends on the degree of compliance of specified clauses within the MSS. MSS clauses applicable to silver and gold levels are marked with an [S] or [G] respectively. The degree of compliance scoring is covered in A.5.1 Compliance scoring system.

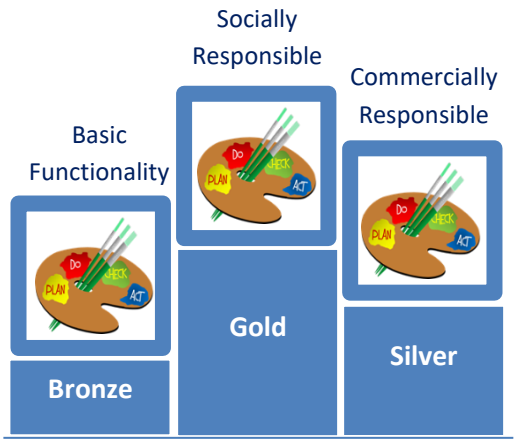


Figure 6: Compliance Award Levels

Some clauses of the MSS are exempt for bronze compliance and silver and gold require compliance with additional clauses and general compliance to a higher standard.

Bronze requires that for clauses not marked with an [S] or [G] a minimum compliance score of 0.8 is achieved with a minimum compliance factor of 0.7.

Silver requires that for all clauses not marked with a [G] a minimum compliance score of 0.9 is achieved with a minimum compliance factor of 0.8.

Gold requires that a minimum compliance score of 0.9 is achieved for all clauses with a minimum compliance factor of 0.9.

Clauses with a silver or gold rating may be a mandatory stakeholder requirement or a legal requirement in some countries. Legal compliance is required for bronze level compliance.

Auditors assessing silver and gold level requirements must be suitably qualified and experienced in the enhanced requirements.

A.5.3. Organisation size automatic clause exemptions

Some requirements of this MSS are automatically exempted for particular sizes of organisation with clauses marked as follows:

a) Micro exempt [≠μ]
b) Micro and Small exempt [≠μS]
c) Micro, Small and Medium exempt [≠μSM]
d) Large – not applicable.

The organisation shall define and record its size in terms of staff numbers as per section B.1 Scope of organisation's arrangements. Exemptions shall lapse twelve calendar months after the time the organisation exceeds a size classification through growth.

A.5.4. Certification

If the scope of the management system is unrestricted as per section B.1 Scope of organisation's arrangements, this MSS may be used for the following forms of management system certification:

a) Self-certification by the organisation (Bronze level only),
b) Certification of its suppliers by an already certified organisation (Bronze level only),
c) Certification of an organisation by an independent certification body (Bronze, Silver or Gold level).

Where the scope is restricted, this MSS may be used for the following form of management system certifications:

d) Self-certification by the organisation (Bronze level only),
e) Certification of its suppliers by an already certified organisation (Bronze level only),
f) Certification of an organisation by an independent certification body (Bronze, Silver or Gold level).

Where certification status is communicated to another body, including advertising, the certification level shall always be accompanied with 'self-certified' and/or 'a definition of the restricted scope' where applicable.

Covert arrangements may be excluded from independent certification.

A.6. Management principles

This MSS has been created by focusing on first principles rather than a superposition of existing management system standards. It has been attempted to design the MSS so that it is both elegant and functional. The first issue of this standard in 2014 took account of 17 guiding principles contained in this section of the standard. These have since been extended and published in the IMC Paper: Integrated Management Definition and Elaboration. They are also directly accessible via the Integrated Management Community (IMC) website.

Optimal synergistic benefit will be received if the principles are applied collectively rather than in isolation.

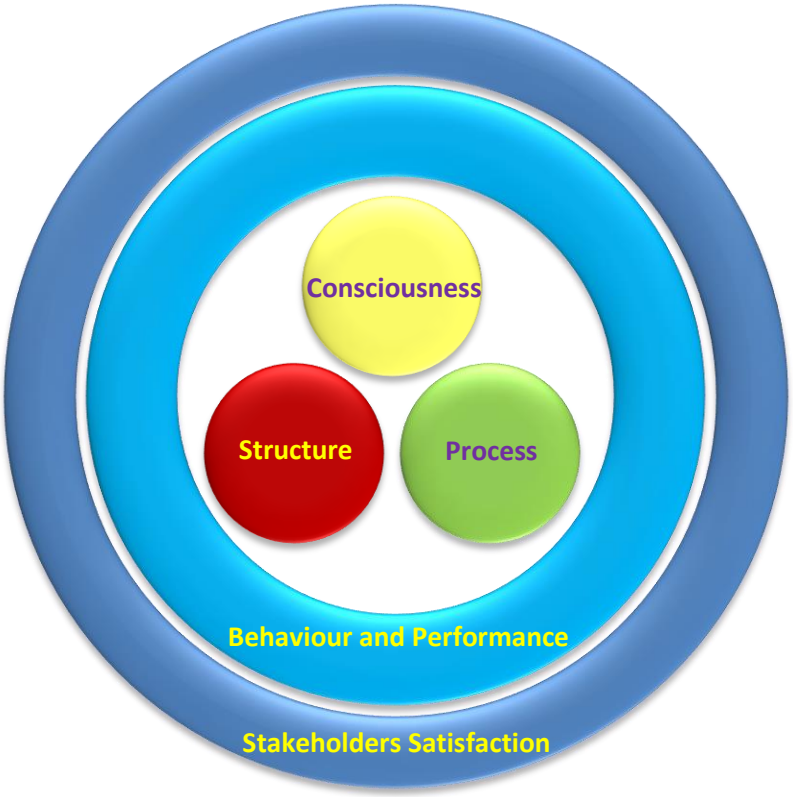


Figure 7: Essence of an Organisation

A.7. MSS user interfaces

While this MSS may be used directly by a manager within an organisation this is generally not the most effective or efficient way of obtaining optimal value. It is strongly recommended that organisations seek advice from their trade body or other expert adviser with regard to the best way to interact with this MSS.

The MSS may be interfaced directly with users or indirectly via an internal or external consultant or paper or electronic application – refer to Figure 8: MSS User Interfaces. The MSS contains electronic bookmarks to permit electronic applications to directly interface with its sections via hyperlinks – refer to section A.2 MSS navigation.

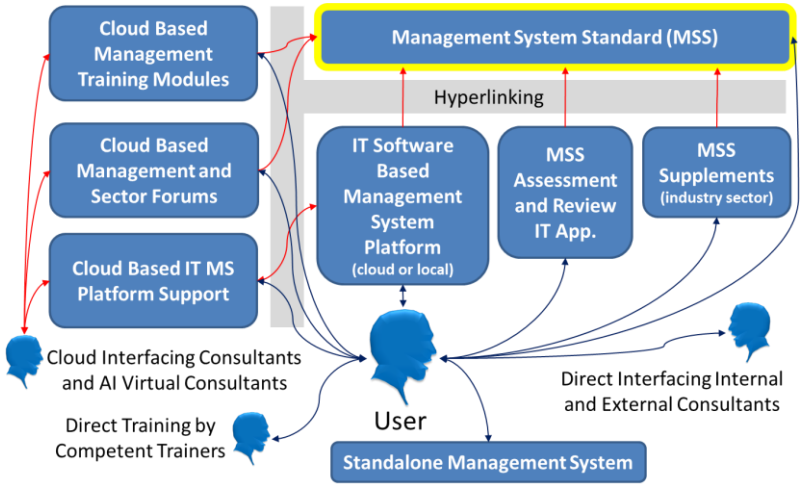


Figure 8: MSS User Interfaces

Support organisations are free to assist each size and type of organisation through creative innovation to fully exploit the value of this MSS – refer to Copyright. This may include the development of IT based software platforms, MSS

assessment and review applications and standards supplements that elaborate the MSS and provide additional requirements for industry sectors or specific types of organisation.

By hyperlinking directly to the MSS it is not necessary to replicate the contents of the MSS in an application thereby decreasing the likelihood of the platform or application becoming misaligned with future revisions of the MSS i.e. increasing the potential for future proofing applications.

The MSS potential interfaces include:

a) Managers within organisations developing management systems,
b) MSS supplementary standards specific to industry sectors,
c) Consultants providing support and advice via various channels,
d) The organisation's paper or electronically based management system or a proprietary computer software based application on a local server,
e) MSS assessment and review applications e.g. audit applications,
f) Web based training, management and sector discussion forums, and support platforms, which may include conventional consultant advice and artificial intelligence.

See also Appendix 8: Getting started with the MSS.

B. General Requirements

Management systems shall comply with these general requirements covering:

B.1 Scope of organisation's arrangements
B.2 Coherent functionality
B.3 Stakeholder specific requirements

Unless the scope of the management system is limited as per section B.1 Scope of organisation's arrangements, the requirements defined within this MSS shall be applied with respect to all facets of the organisation's performance that impact or may reasonably be expected to potentially impact its stakeholders. Types of performance include:

a) Quality of internally and externally delivered goods and services,
b) Personnel health, safety and security,
c) Environmental health, safety and security,
d) Physical and virtual assets health, safety and security,
e) Commercial and financial health, safety and security,
f) Commercial responsibility, [S]
g) Social responsibility, [G]
h) Stakeholder relations etc. – refer to Appendix 6: General Aspects of an Organisation.

The organisation shall ensure that its structures and processes throughout their life cycle are:

i) Fit for purpose,
j) Legally compliant,
k) As far as practicable, are making the best use of resources,
l) Commercially responsible, [S]
m) As far as practicable, are equitably satisfying the needs and expectations of stakeholders, [G]
n) Socially responsible. [G]

B.1. Scope of organisation's arrangements

∞ The scope of the organisation's arrangements shall be defined. It shall cover all facets of performance that the organisation may potentially directly control and its potential to influence organisations controlled by others.

The organisation shall define its size according to employee numbers and financial turnover, corresponding to legal definitions prevailing in the part of the world that the organisation operates , for the purposes of section A.5.3 Organisation size automatic clause exemptions.

The scope of application of this MSS shall cover the management of the whole of the organisation's strategic, tactical and operational structures and processes if it wishes to attain silver or gold certification status as per section A.5.4 Certification.

The arrangements required to be compliant with this MSS shall:

a) Be appropriate to the significance of the issue being controlled or guided,
b) Be suitable and sufficient to meet the needs of the organisation's stakeholders,

c) Define structure and process ownership and responsibilities,
d) Define rules for process decisions and execution,
e) State the working language(s) – see section C.4.4.4 Language.

Where this MSS requires a schedule to be created, this may be in paper or electronic form and may be stand-alone or part of a database – refer to section C.4.1 Management system structure.

B.2. Coherent functionality

∞ To optimise its overall functionality and continual improvement, the organisation shall implement the requirements of this MSS taking account of the interactions between requirements and their collective synergistic impact on the organisation's structures and processes as a whole.

Elements of the management arrangements shall endeavour to:

a) Support and be compliant with the purpose, policy, strategy and objectives of the organisation,
b) Comply with applicable legislation and adopted standards,
c) Not conflict with and to harmonize with other elements,
d) Promote orderliness, simplicity and transparency,
e) Promote effectiveness, efficiency, innovation, robustness, agility and resilience,
f) Promote optimal functioning of plan-do-check-act management cycles operating throughout the organisation at every level,
g) Impose management control that is appropriate to the potential to impact stakeholders needs and expectations,
h) Make the best use of resources.

Principles listed in section A.6 Management Principles shall be fully implemented individually and collectively throughout all aspects of the management system, as applicable. [S]

B.3. Stakeholder specific requirements

∞ Where a stakeholder makes requirements specific to their own needs and expectations which are not generally shared by other stakeholders the organisation shall define stakeholder specific arrangements that are additional to its generic management arrangements. See also sections C.1.1 Foundation planning and C.4.1 Management system structure.

Stakeholder specific arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

B.4. Application of the MSS

∞ Unless the scope of the management system is restricted as per section B.1 Scope of organisation's arrangements, the organisation shall apply all applicable requirements of this MSS to a degree that adds value to its functionality.

Requirements deemed to be not applicable or only partially applicable shall be justified and recorded in a schedule or other suitable instrument. Some sizes of organisation are exempt from specific MSS clauses – refer to section A.5.3 Organisation size automatic clause exemptions.

C. Specific Requirements

This main section of the MSS contains twelve hierarchical subsections corresponding to section E Specific Requirements Guidance. The overall relationship and philosophy of the twelve elements is described in section A.1.3 Universal PDCA Twelve Element Structure.

C.1. Assessment and Development of Controls

∞ The organisation shall formally define arrangements for controlling and guiding the processes used to develop prospect and risk controls designed to equitably satisfy stakeholder's needs and expectations using the best use of resources and shall cover:

- C.1.1 Foundation planning,
- C.1.2 Strategic plan
- C.1.3 Policy statement,
- C.1.4 Objectives,
- C.1.5 Legislation and standards,
- C.1.6 Prospect and risk assessment,
- C.1.7 Performance justification,
- C.1.8 Management tools and techniques.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

The organisation shall review its assessment and development of controls outputs according to section C.12.1 Review scheduling or when an event indicates a reason – refer to sections C.10.1.3 Investigation and analysis of root causes and C.10.2 External reactive investigation.

C.1.1. Foundation planning

∞ The organisation and significant projects shall identify, as applicable:

a) The principal goods and services that are to be supplied to customers,
b) The external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended outcome of its management system,
c) Its stakeholders and their principal needs and expectations – see also section B.3 Stakeholder specific requirements,
d) Its stakeholder behavioural characteristics and potential to influence the organisation, [G]
e) Its principal internal strengths and weaknesses,
f) The principal external opportunities and threats,
g) Its current or proposed principal structures and processes for delivering its purpose and the key interfaces,
h) Which goods and services are to be sourced externally,
i) Significant aspects of its current or proposed structures and processes that may impact facets of performance relating to stakeholder needs and expectations – refer to Appendix 6: General Aspects of an Organisation,
j) The need for any management arrangements to be covert as per section C.4.1 Management system structure, C.4.2 Control and C.4.2.10 Access,
k) The resources to implement and maintain the organisation's management system.

Services and goods delivered by the organisation shall:

l) Be consistent with its legal status – refer to sections C.1.5 Legislation and standards and C.3.1 Entity maintenance,
m) Be compliant with adopted standards – refer to section C.1.5 Legislation and standards,
n) Take account of potential conflicts of interest between diverse activities and avoid activities that would compromise confidence, impartiality etc. – refer to sections B.1 Scope of organisation's arrangements and C.3.1 Entity maintenance.

The organisation, as appropriate, shall engage in social dialogue with its stakeholders. [G]

The organisation shall establish and maintain the following schedules of significant data and who is responsible for its integrity and being kept up to date. It may be in the form of a database(s) – see also sections C.4.1 Management system structure, C.4.2.1 Databases and C.1.6.2 Classification of structures and processes.

o) Management activities conducted on a cyclic basis,
p) Principal core, supporting and contingency processes and whether they are repetitive or non-repetitive – see also sections C.7.1.2 Repetitive and frequently conducted processes and C.7.1.3 Non-repetitive and infrequently conducted processes,
q) An inventory of significant physical and virtual assets including:
   - Employed personnel, status and competency - refer to section C.2.4 Employment life cycle,
   - Commercial contracts and customers - refer to section C.3.3 Contracts,
   - Data types and management documents - refer to section C.4.1 Management system structure,
   - Matter and energy including data media - refer to section C.5 Matter and Energy,
   - Suppliers and status - refer to section C.6 Suppliers,
   - Normal structures and normal processes - refer to section C.7 Normal Structures and Processes,
   - Contingency structures and processes - refer to section C.8 Contingency Structures and Processes,
   - Change initiatives and status – refer to section C.9.1 Change management lifecycle,
   - Reactive investigations - refer to section C.10 Reactive Investigation,
   - Planned monitoring - refer to section C.11 Planned Monitoring,
   - Reviews and actions - refer to section C.12 Review and Action.

A description of the structure of the management arrangements for achieving the organisation's purpose, vision and objectives shall be established and maintained as per section C.4.1 Management system structure.

C.1.2. Strategic plan

∞ The organisation shall establish and maintain a strategic plan(s) that address, as applicable:

a) Its purpose, vision, brand and principal objectives,
b) Stakeholder needs and expectations,
c) Management style, personnel structure and degree of empowerment,
d) Delivery of its goods and/or services,
e) How goods and services are to be sourced externally,
f) Commercial profitability and viability,
g) Markets,

h) Competition,
i) Partners and suppliers,
j) Current and proposed legislation
k) How resources such as personnel, data, matter and energy will be suitable and sufficient and used in an optimal way,
l) An evaluation of the gap between the organisation's current situation and its vision.

See also section C.9.3 Strategic change.

C.1.3. Policy statement

∞ The organisation shall establish and maintain a policy statement(s) signed by the current chief executive for the entity and shall include its purpose, values and vision, and be appropriate to the organisation size, type and nature of the organisations activities, goods and/or services. It shall include a commitment to respect and equitably satisfy its stakeholders by:

a) Being open to and aware of their needs and expectations,
b) Making the best use of resources,
c) Cooperating and coordinating with them,
d) Effectively and efficiently managing the organisation's structures and processes wherever they are located or conducted,
e) Complying with applicable legislation and contractual arrangements,
f) Providing high quality goods and services to customers on time and within budget,
g) Minimizing accidents and undesired events, [S]
h) Maintaining and promoting personnel health, welfare, equal opportunity and gender equality [S]
i) Protecting and improving the environment,
j) Commercially responsible, just, anti-bribery, anti-corruption and whistleblowing objectives, structures and processes – refer to section C.7.1Structure and process design , [S]
k) Socially responsible objectives, structures and processes, [G]
l) Honest, simple and clear communication,
m) Securing data and respecting privacy,
n) Defining clear objectives and allocating appropriate resources,
o) Optimizing the functionality of Plan-Do-Check-Act management cycles throughout the organisation including strategic, tactical and operational processes to drive continual learning and improvement of the management system and the organisation performance, [S]
p) Applying management controls that are appropriate to the significance of the issue,
q) Documenting management arrangements to an appropriate extent dependent on the potential to affect performance and to provide assurance,
r) Applying change controls that are appropriate to the potential for an ill-conceived modification or experiment to affect the organisation and its stakeholders, [S]
s) Requiring personnel directly involved in its operations to be briefed on and required to understand the requirements of policy statement(s) and to comply with all organisation policies, rules and procedures,
t) Requiring personnel only to report for and remain at work while medically, physically and mentally fit and be free of the influence of alcohol or drugs that may impair their competence, [S]
u) Encouraging personnel to halt work processes or take other appropriate action if there is good reason to believe that there is any danger to personnel, assets, the environment or the quality of goods or services. [S]

The policy statement shall be elaborated in sufficient detail and clarity to enable stakeholders to interpret how the organisation intends to or may potentially interact with or impact them. [≠µ]

These values and principles shall be implemented through; management leadership, the maintenance of a management system, a positive organisation culture and a comprehensive competence base. Organisation culture shall be promoted through management communication, leadership and ensuring management system compliance.

Overt policy statement(s) shall be made available to all stakeholders and invite their feedback for improvement. Policy statements needing to be covert shall be appropriately restricted. [≠µ]

See also section C.9.3 Strategic change.

C.1.4. Objectives

∞ Objectives shall be established for each relevant function and level of the organisation consistent with the organisation's strategic plan(s), policy statement(s) and potential to impact stakeholder needs and expectations.

The organisation shall define the desired outcome of an objective and the process of realizing it.

Objectives shall where practicable be SMART and define:

a) What will be done,
b) What resources will be required,
c) Who will be responsible and have authority,
d) When it will be completed,
e) How the results will be evaluated.

Objectives shall be monitored as per section C.11.1 Monitoring planning and periodically reviewed as per section C.12.1 Review scheduling.

C.1.5. Legislation and standards

∞ Legislation significant to the organisation and other adopted standards shall be identified and taken into account in establishing, implementing and maintaining the management system – refer to section C.4.1 Management system structure.

Legislation and standards shall be periodically reviewed as per section C.12.1 Review scheduling and where relevant following an unexpected event – refer to section C.10 Reactive Investigation.

The relevant information contained within legislation and adopted standards or an interpretation approved by the organisation shall be accessible to those with relevant responsibilities for achieving compliance – see section C.2.2 Responsibilities and authorities.

An orderly structured schedule of identified applicable elements of legislation shall be maintained and aligned with the main structure of the management system – refer to section A.1.3 Universal PDCA Twelve Element Structure. [S] [≠µ]

C.1.6. Prospect and risk assessment

∞ Strategic, tactical and operational structures and processes shall be subjected to an appropriate degree of prospect and risk assessment using suitable methodologies appropriate to satisfying and not negatively impacting stakeholder needs and expectations while making the best use of resources. This also includes the application of established and creative innovative solutions to address stakeholder needs and expectations.

The organisation shall attempt to optimise management under uncertainty by endeavouring to maximise and minimize individual and aggregates of prospect and risk respectively. Any individual or aggregate prospect and risk shall be acceptable according to pre-defined prospect and risk criteria.

Where the threat is intelligent the prospect and risk assessment shall be conducted covertly, as appropriate – refer to section A.4 Covert management arrangements.

Records of prospect and risk assessment shall be retained as evidence meeting the organisation's requirements and the mandatory requirements of stakeholders – refer to section C.4.2.9 Records.

C.1.6.1. Prospect and risk assessment planning

∞ The organisation shall define the philosophical foundation, criteria and responsibilities for conducting prospect and risk assessment processes and the acceptance of assessed residual prospect and risk and associated prospect and/or risk controls. It shall also define how it will attempt to optimise interdependent prospects and/or risks where the needs and expectations of stakeholders appear to potentially conflict and could be highly significant. See also section C.2.5.3 Management of conflict.

Planning of prospect and risk assessments shall:

a) Decide how assessments shall be managed and who shall be responsible,
b) Take into account routine and non-routine activities including temporary and permanent modifications and experiments within the organisation and its projects or external projects it may be involved in – refer to section C.9 Change ,
c) Address types of opportunity and hazard/harm within the organisation's environment and outside of it that may significantly impact the organisation's objectives or stakeholders needs and expectations,
d) Address strategic, tactical and operational structures and processes including goods and services identified in the strategic plan - refer to section C.1.2 Strategic plan,
e) Address individually and collectively personnel, commerce, data, matter and energy suppliers and change conducted within and external to the organisation,
f) Address the lifetime aspects of entities,
g) Take account of legislation and expert advice and assistance which shall be sought as necessary – refer to sections C.1.5 Legislation and standards and C.2.3 Provision of expert advice and assistance,
h) Assess and classify structures and processes according to type, the potential to impact stakeholder needs and expectations, and whether they are repetitive or non-repetitive – see also sections C.7.1.2 Repetitive and frequently conducted processes and C.7.1.3 Non-repetitive and infrequently conducted processes,
i) Identify responsibility and competency for conducting, approving and reviewing each type of prospect and risk assessment – refer to section C.2.4.4 Competence,
j) Identify the need for general and specialist prospect and risk assessments,

k) Identify and justify modelling and analytical methodologies to be used in prospect and risk assessments – refer to section C.1.8 Management tools and techniques,
l) Identify if prospect and risk assessment processes and outputs or any other aspect needs to be covert – refer to section A.4 Covert management arrangements,
m) Define criteria for confirming that assessed residual prospect and risk and associated prospect and risk controls are acceptable including the provision of sufficient redundancy and diversity to ensure the required continuity of the organisation's functionality and availability to deliver its purpose. This should ibe done while endeavouring to make the organisation's structures and processes lean.

Where an organisation identifies an aspect with a potential external impact it shall be treated as a collective impact of the summation of all similar behaviours within relevant organisations acting as a whole.

NOTE: Addressing life cycle aspects does not require a detailed life cycle assessment. It implies that the focus extends over the life cycle addressing all aspects that are significant.

C.1.6.2. Classification of structures and processes

∞ The organisation shall define and implement arrangements for classifying physical and non-physical structures and processes according to their potential to impact perceived stakeholder needs and expectations, and their need to be managed covertly or confidentially, with respect to: [≠µ]

a) Personnel,
b) Commerce,
c) Data,
d) Matter and energy including data media,
e) Suppliers – refer to section C.6.1 Classification, vetting and control,
f) Normal structures and normal processes,
g) Contingency structures and contingency processes,
h) Change,
i) Reactive investigation,
j) Planned monitoring,
k) Review and action.

The organisation shall classify its structures and processes according to defined arrangements. [≠µ]

C.1.6.3. Aspect and impact identification

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes, each part of the organisation's overall structures and processes including workplaces and significant projects shall be subjected to general prospect and risk identification using an appropriate methodology and recorded that includes, as applicable:

a) Identification of aspects of structures and processes that may potentially significantly impact stakeholder needs and expectations – refer to Appendix 6: General Aspects of an Organisation,
b) Identification of opportunities to satisfy customer and other stakeholder needs and expectations,
c) Identification of potential sources of harm impacting stakeholder needs and expectations and who will be affected.

The need for specialist prospect and risk assessments shall be identified during the general prospect and risk assessments and conducted as necessary.

C.1.6.4. Prospect and risk analysis and synthesis

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes, identified prospects and risks shall be subjected to an appropriate degree of prospect and risk analysis and synthesis:

a) Assuming that existing prospect and risk controls are ineffective,
b) Using appropriate methodologies,
c) Attempting to equitably optimise stakeholder needs and expectations while making the best use of resources,
d) Addressing, as applicable, the 'what, how, where, who, when and why' related to sources of potential prospect and risk,
e) Using numerical and/or qualitative estimation, as appropriate,

C.1.6.5. Prospect and risk improvement

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes and criteria defined as per section C.1.6.1 Prospect and risk assessment planning, define prospect and risk controls. This should include structure and/or process change proposals and development of contingency arrangements as appropriate, so that, as appropriate, prospect and/or risk improvement is achieved via avoidance, transfer or control to acceptable levels compliant with defined prospect and risk criteria as per section C.1.6.1 Prospect and risk assessment planning.

Sufficient redundancy, diversity and segregation shall be implemented to ensure the required continuity of the organisation's functionality and its availability to deliver its purpose. This should be done while endeavouring to make the organisation's structures and processes lean.

C.1.6.6. Prospect and risk improvements analysis and synthesis

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes, where it has been proposed to modify a structure and/or process, to achieve prospect and/or risk improvement, the prospect and/or risk of the relevant aspects shall be re-subjected to the requirements of section: C.1.6.4 Prospect and risk analysis and synthesis.

C.1.6.7. Prospect and risk assessment review

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes, prospect and risk assessments shall be reviewed prior to approval according to section C.1.6.8 Residual prospect, risk and controls acceptance against prospect and risk criteria defined as per section C.1.6.1 Prospect and risk assessment planning. An independent peer review shall be conducted where significant potential prospect and risk is being managed or where it is a stakeholder requirement.

Prospect and risk assessments shall be periodically reviewed or when the assessment inputs change. The periodicity shall be defined – see also section C.1.1 Foundation planning.

Where risk assessment templates are maintained for regularly performed tasks, they shall be reviewed against current conditions and modified as appropriate according to section C.9 Change.

C.1.6.8. Residual prospect, risk and controls acceptance

∞ Subject to the classification requirements defined according to section C.1.6.2 Classification of structures and processes, the residual prospects and risks and their respective controls shall be accepted and approved by the designated responsible person.

C.1.7. Performance justification

∞ Where required by stakeholders, formal performance justifications shall be established and maintained according to arrangements agreed with the relevant stakeholder(s). These arrangements shall confirm an appropriate degree of validation and verification has been applied to provide the level of confidence required by relevant stakeholders.

Performance justifications shall be subject to a level of peer review commensurate with the associated risks. [S]

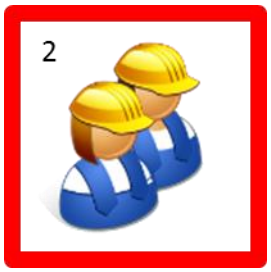
The organisation shall not conduct operations outside of the justification's scope where this will violate legitimate stakeholder requirements.

C.1.8. Management tools and techniques

∞ The use of management tools and techniques to optimise or improve or assist the functionality structures and processes by the organisation or by a supplier on its behalf shall be defined or the source(s) of the methodologies referenced.

The circumstances of use, any limitations and the confidence that may be placed in the outputs shall be stated.

C.2. Personnel



∞ The organisation shall formally define arrangements for controlling and guiding the management of personnel under its control including:

Error! Reference source not found. Organisation,
C.2.2 Responsibilities and authorities,
C.2.3 Provision of expert advice and assistance,
C.2.4 Employment life cycle,
C.2.5 Interactions.

The organisation shall ensure that personnel management is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.2.1. Organisation

∞ The chief executive of the organisation shall establish a personnel structure that is suitable and sufficient to deliver its purpose.

The organisation shall ensure that personnel resources are adequate to implement and maintain the strategic plan, policy, objectives, management system, normal processes, contingency processes, change processes and the management of projects covered in section C.1 Assessment and Development of Controls.

The organisation shall establish suitable and sufficient cross functional groups, as necessary, to support its objectives and the on-going management of its management system. These groups shall contain or have access to suitable and sufficient expert advice – refer to section C.2.3 Provision of expert advice and assistance. [≠µ]

The organisation and project personnel structures shall be defined and include the organisation's principal directly employed personnel and principal contracted personnel from partnering and/or supplier organisations, as applicable.

C.2.1.1. Remote working

∞ The organisation shall ensure that the working of personnel remotely from the main organisation, on a temporary or permanent basis:

a) Is subjected to a suitable and sufficient prospect and risk assessment that addresses the potential significant impacts on all stakeholder needs and expectations as per section C.1.6 Prospect and risk assessment,
b) Is appropriately controlled, to equitably balance the needs of stakeholders,
c) Meets legal and contractual obligations –as per sections C.1.5 Legislation and standards and C.3.3 Contracts,
d) Is appropriately monitored as per section C.11 Planned Monitoring.

C.2.2. Responsibilities and authorities

∞ The organisation shall establish and maintain a code-of-conduct that all personnel working under its control shall be required to comply with whenever working on behalf of the organisation. The code-of-conduct shall define personal behaviour compliant with the organisation's policy statement required by section C.1.3 Policy statement.

The organisation shall establish and maintain job descriptions for all defined personnel posts and roles sufficient for recruitment and monitoring performance. The job description shall directly or via cross reference include:

a) Job title,
b) Purpose of the organisation post or role,
c) Place in organisation and lines of reporting,
d) Duties,
e) Authority,
f) Accountability,
g) Competence.

Responsibilities and authorities shall take account of prospect and risk assessments and limit the authority to make decisions as appropriate – refer to section C.1.6 Prospect and risk assessment.

Duties shall be sufficiently segregated to ensure that there are no conflicts of interest.

Defined posts and roles shall, as appropriate, cover responsibility for:

h) Making strategic, tactical and operational decisions,
i) Establishing, implementing and maintaining a management system in accordance with the requirements of this and other applicable standards and applicable legislation, and acting as the focal point and reporting on its performance to top management. This role is referred to as the management system representative,
j) One or more principal structures and/or processes and ensure all aspects comply with relevant parts of this standard – refer to sections C.1.1 Foundation planning and C.7.1 Structure and process design,
k) Establishing and maintaining inventories of physical and nonphysical assets – refer to section C.1.1 Foundation planning,
l) Approving competence requirements,
m) Approving personnel appointment and confirming competence,
n) The management and/or conduct of contingency processes – refer to section C.8 Contingency Structures and Processes,
o) The management and/or conduct of reactive investigation – refer to section C.10 Reactive investigation,
p) The management and/or conduct of planned monitoring – refer to section C.11 Planned monitoring,
q) Establishing and operating review processes – refer to section C.12 Review and Action.

Personnel duties shall be documented and formally acknowledged.

Personnel shall be required to:

r) Comply with the management system and where appropriate engage in its development and improvement,
s) Cooperate with other workers and stakeholders,
t) Coordinate individuals and organisations where empowered,
u) To be vigilant and self-monitor as per section C.11.7 Self-monitoring and vigilance and stop work and consult where there is significant cause to believe that processes are deviating from agreed objectives or requirements or are negatively impacting stakeholder requirements – see also section C.2.5.3 Management of conflict,
v) Not to engage in or assign another to any activity for which they are not competent, unless adequately supervised, or violates the management system,
w) Not to engage in or encourage or cause others to engage in bribery, corruption or commercially irresponsible actions or behaviours and to report such suspected or actual undesired events – see also section C.11.7 Self-monitoring and vigilance, [S]
x) Not to initiate or participate in socially irresponsible actions, [G]
y) Comply with the principles of confidentiality and not disclose information to those unauthorised to receive it,
z) Show respect to stakeholders,
z) Report the organisation to a responsible body if it acts Illegally and the matter is not capable of being readily resolved internally – see also sections C.2.5.3 Management of conflict and C.2.5.2.3 Whistleblowing,
aa) Report the organisation to a responsible body if it acts in a commercially irresponsibly way and the matter is not capable of being readily resolved internally – see also sections C.2.5.3 Management of conflict and C.2.5.2.3 Whistleblowing. [S]

Personnel shall be empowered to a degree that optimises the functionality of the organisation and authority shall be formally defined for specifying, procuring, installing, accessing, operating, maintaining and changing structures and processes including infrastructure and data.

Responsibilities and authority shall be formally terminated on leaving the organisation or project as per section C.2.4.9 Leaving.

Where appropriate, the responsibility and authority for covert arrangements shall be defined.

C.2.3. Provision of expert advice and assistance

∞ The organisation shall define its needs for expert advice and maintain a schedule of how these needs are being fulfilled internally or externally to the organisation.

The organisation shall maintain expert committee and organisation structure(s), as necessary and specifically required by stakeholders, to administer expert advice and reviews – refer to sections **Error! Reference source not found.** Organisation and C.2.2 Responsibilities and authorities.

The organisation shall engage additional expert advice and support when the need is identified – refer to sections C.1.6 Prospect and risk assessment and C.10.1.3 Investigation and analysis of root causes.

The arrangements shall meet the requirements of sections C.2.4.4 Competence, C.3.2 Stakeholders and C.6 Suppliers, as applicable.

C.2.4. Employment life cycle

∞ The organisation shall establish and maintain formal arrangements for managing the employment lifecycle of personnel under its control from recruitment to leaving and records retained.

Employees over their employment lifecycle shall be formally issued with suitable and sufficient controlled documents as per section C.4.2.2 Internal documents to fulfil their duties and authority covered in section C.2.2 Responsibilities and authorities. The documents shall be repossessed when the employee leaves the organisation as per section C.2.4.9 Leaving.

Personnel data shall be managed as per section C.4.2.9 Records and restricted as per section C.4.2.10 Access.

C.2.4.1. Recruitment

∞ The organisation shall:

a) Ensure that a job description accurately defines the requirement of a post or role and is legally compliant prior to initiating recruitment to an organisation or project,
b) Establish and maintain a standard application form(s) to collect the applicants key data sufficient for the creation of short listing candidates for interviewing,
c) Job advertisements shall accurately reflect the job description and not unfairly discriminate or otherwise violate the organisation's policy statement,
d) Subject interviewees to the same set of interview questions for a given post or role, and retain records of their performance and conclusions leading to recruitment decisions,
e) Take up references and verify that qualifications are true,
f) Conduct a level of due diligence informed by the prospect and risk associated with the post or role,
g) Conduct medicals and drug and alcohol testing to meet job requirements.

C.2.4.2. Induction

∞ Personnel new to the organisation, a project, post or role shall be appropriately supervised until they receive an appropriate induction(s) by a responsible and competent person(s).

Induction briefings shall be in a language understandable to the inductee and be appropriately structured, relevant to the inductee post or role and cover, as applicable:

a) Location emergency rules and welfare arrangements,
b) Introduction to personnel that the person will interact with,
c) Terms of employment and code-of-conduct as per section C.2.2 Responsibilities and authorities,
d) Job description,
e) Introduction to the organisation's purpose and principal operations,
f) Introduction to the policy(s),
g) Good/service quality, health and safety and environmental principles awareness,
h) Security principles awareness including clean desk policy, where applicable,
i) Commercial responsibility principles awareness, [S]
j) Social responsibility principles awareness, [G]
k) Introduction to the management system, the importance of compliance and what to do if there are difficulties or on making suggestions for improvement,
l) Conflict resolution, disciplinary, grievance and whistleblowing arrangements,

m) Awareness of the principal prospects and risks associated with their workplace related to structures and processes and how they are controlled.

C.2.4.3. Appointment

∞ A schedule shall be maintained showing current personnel appointments to posts and roles and those able to deputise fully or supervised corresponding to the competence schedule developed under section C.2.2 Responsibilities and authorities.

Contracts of employment shall be established, issued and implemented, including terms and conditions for appointees compliant with C.3.3 Contracts.

C.2.4.4. Competence

∞ The organisation shall:

a) Establish and maintain a schedule of competencies that are judged to be either essential or desirable to support the organisation and project processes and also providing expert advice and assistance as per section C.2.3 Provision of expert advice and assistance,
b) Take account of any classification of structures and processes – refer to section C.1.6.1 Prospect and risk assessment planning,
c) Maintain sufficient competent personnel to operate the organisation's normal and contingency processes including strategic, tactical and operational processes compliant with the competence schedule,
d) Establish and maintain a competence records database – refer to section C.4.2.1 Databases, [≠μ]
e) Only assign personnel to tasks for which they are competent or otherwise appropriately supervised.

The following minimum levels of competences shall be included in the competence schedule:

f) Stakeholder needs and expectations awareness,
g) Organisation policy awareness,
h) Good and service quality awareness,
i) Commercial awareness,
j) Commercial responsibility awareness, [S]
k) Social responsibility awareness, [G]
l) Personnel health, safety and welfare awareness,
m) Environmental awareness,
n) Management system awareness,
o) Principal prospects and risks awareness including those likely to be encountered when visiting premises or sites not under the direct control of the organisation,
p) Prospect and risk assessment,
q) Use of and interaction with the organisation's general support systems including IT,
r) Bronze level internal auditor (bronze level issues),
s) Silver level internal auditor (bronze and silver level issues). [S]
t) Gold level internal auditor (bronze, silver and gold level issues). [G]

Where the organisation's services involve the care of people relevant personnel shall have core competencies that include compassion and empathy personal attributes.

C.2.4.4.1. Competence, education and training needs

∞ The organisation shall

a) From the conduct of periodic personnel appraisals, as per section C.2.4.4.2 Competence development and assessment, determine personnel competence development, education and training requirements based on relevant:
   - Job descriptions,
   - Schedule of identified competences established under section C.2.2 Responsibilities and authorities,
   - Strategy established under section C.1.2 Strategic plan objectives established under section C.1.4 Objectives and management review outputs produced according to section C.12.3 Review output and action,

b) Maintain a 'training needs' program.

C.2.4.4.2. Competence development and assessment

∞ The organisation shall:

a) Continually monitor and review personnel performance and conduct periodic personnel appraisals including:
   - Compliance with job description and other relevant requirements as per section C.2.2 Responsibilities and authorities,
   - Setting and implementation of personal objectives,
   - Maintenance of mental, physical and medical fitness as per section C.2.4.4.4 Fitness,
   - Events involving human error or human violation possibly needing implementation of disciplinary processes as per section C.2.4.8 Discipline,

   Refer also to sections C.11.2 Internal audit, C.11.5 Inspection, C.12.1 Review scheduling and section C.6.4 Performance evaluation.

b) Identify and engage approved external training providers as per section C.6 Suppliers or develop services internally ensuring that trainers and assessors are competent as per section C.2.4.4 Competence,
c) Retain copies of training and competency documents and authenticate as true copies where appropriate as per section C.4.2.9 Records,
d) Actively support the continual personal development (CPD) of its staff necessary to maintain their professional competence.

C.2.4.4.3. Education and training programs evaluation

∞ The organisation shall monitor education and training programs to ensure that they are fit for purpose and to support continual improvement.

C.2.4.4.4. Fitness

∞ The organisation shall:

a) Ensure personnel complete a self-certification medical form at least annually within the constraints of any applicable legislation,
b) Identify special classes of personnel requiring a special risk assessment of the workplace to define limitations and make special provisions, as necessary that may include establishing appropriate convetions as per section C.4.4 Conventions,
c) Monitor special classes of person to ensure the workplace does not cause them any problems,
d) Ensure any significant fitness limitations are communicated to relevant line manager(s),

e) Assign personnel to work patterns that ensure that fatigue does not impair their fitness for the type of work being carried out,
f) Be open to personnel reporting stress or welfare or other problems or behaving unusually,
g) Allow personnel leave for reasonable compassionate circumstances,
h) Subject personnel to for-cause alcohol and drug testing when their behaviour gives cause for concern when part of the organisation's policy,
i) Only assign personnel to tasks for which they are physically, mentally and medically fit or ensure a suitable level of supervision if this is practicable.

C.2.4.5. Welfare

∞ The organisation shall establish and maintain suitable and sufficient welfare arrangements for the personnel under its control appropriate to their fitness – refer to section C.2.4.4.4 Fitness.

C.2.4.6. Work absence and rehabilitation

∞ Managers shall:

a) Interview personnel returning from absence due to significant sickness or injury,
b) Agree a program of rehabilitation,
c) Monitor the rehabilitation program.

C.2.4.7. Post or role change

∞ Personnel undergoing a post or role change shall be treated to the same processes, as applicable, as a new external appointment covered in section C.2.4.1 Recruitment.

The changing of the post or role definition shall be controlled as per section C.9.4 Structure and process change and C.9.5 Project change, as applicable.

C.2.4.8. Discipline

∞ The organisation shall:

a) Maintain a disciplinary process meeting legal requirements,
b) Record reported or observed violations of the organisation's policy or management system and investigate them – refer to section 0 Reactive investigation,
c) Maintain confidentiality as per section C.4.2.10 Access,
d) Interview person(s) suspected of committing violations and if confirmed proceed with disciplinary processes.

C.2.4.9. Leaving

∞ When personnel leave the organisation or project due to resignation, retirement, dismissal or death while in service the organisation shall before final payment is made to the leaver and where practicable:

a) Interview the leaver to:
   - minimise potential negative impacts on organisation performance,
   - determine and record the reason(s) for leaving,
   - capture potentially valuable feedback to aid continual improvement,
b) Ensure all organisation assets are returned,
c) Ensure access is terminated to infrastructure and data,
d) A leaving record is generated and signed by the organisation's representative and the leaver,

e) The organisation's databases are updated as per section C.4.2.1 Databases.

If requested, the organisation, at its discretion, shall provide a factual reference for the person leaving.

C.2.5. Personnel Interactions

∞ The organisation shall establish and maintain efficient and effective interactions covering:

C.2.5.1 Interfaces,
C.2.5.2 Communication, consultation, participation and reporting,
C.2.5.3 Management of conflict.

C.2.5.1. Interfaces

∞ When the need is identified, organisation(s) shall define formal arrangements for:

a) Interacting with other organisations,
b) Interactions between internal organisations.

C.2.5.2. Communication, consultation, participation and reporting

∞ Communication, consultation, participation and reporting arrangements shall be transparent, appropriate, credible, clear and reliable, and cover:

C.2.5.2.1 Internal communication, consultation, participation and reporting,
C.2.5.2.2 External communication, consultation, participation and reporting.

Communication, consultation, participation and reporting arrangements shall address:

a) What, when, how and to whom to communicate, consult, facilitate participation and report,
b) Responsibilities and authorities – refer to C.2.2 Responsibilities and authorities.
c) Prospect and risk – refer to C.1.6 Prospect and risk assessment,
d) Interaction with existing and potential customers and other stakeholders covering:
   - Goods and services information – refer to section C.3.2 Marketing,
   - Enquiries, contracts or order handling, including amendments – refer to section C.3.3 Contracts,
   - Stakeholder feedback, including complaints – refer to sections 0 Planned monitoring and 0 Reactive investigation – Events,
   - Handling of stakeholder assets, if applicable – refer to section C.3.3 Contracts,
   - Specific requirements for contingency actions, where relevant – refer to section 0 Contingencies,
e) Confidentiality – refer to sections C.2.2 Responsibilities and authorities and C.4.2.10 Access ,
f) Reputation of the organisation and its stakeholders,
g) Conventions as per section C.4.4 Conventions,
h) Accuracy and error correction – see also C.9.2 Corrective and preventive action and 0 Contingencies,
i) Reporting of data relating to the organisation – refer to C.4.3.2 Indicators.
j) Reporting actions following suspected or actual serious institutional or individual negligence, neglect or illegality, breaches of security – see also sections 0 Reactive investigation – Events and **Error! Reference source not found.** Whistleblowing.

Classes of information that should not be disclosed to unauthorized persons and how it is to be managed shall be defined. See also section C.2.2 Responsibilities and authorities and C.4.2.10 Access to data.

Communication restrictions shall not unfairly impact the legitimate needs and expectations of stakeholders.

The organisation, as appropriate, shall engage in social dialogue with its stakeholders and within its sphere of influence promote social responsibility. [G]

Significant communication failures shall be treated as events as per section 0 Reactive investigation and corrective action and preventive action taken as per section C.9.2 Corrective and preventive action.

The organisation shall retain records as evidence of its communications as per section C.4.2.9 Records.

C.2.5.2.1. Internal communication, participation and consultation

∞ The organisation shall define and implement formal bi-directional channels of communication.

The organisation shall consult relevant internal stakeholders where proposed changes may significantly impact them.

As appropriate, the organisation shall involve personnel in:

a) Prospect and risk assessments,
b) Undesired events investigation,
c) Significant organizational change,
d) Development and review of policies and objectives.

The organisation shall implement aids to enhance communication in addition to that required by legislation. [S]

C.2.5.2.2. External communication, consultation, participation and reporting

∞ The organisation shall:

a) Maintain contact details with all key organisations that it deals with,
b) Report all relevant accidents and undesired events to regulatory bodies and other relevant stakeholders without undue delay and immediately where the body has contingency arrangements or other means to achieve risk mitigation – see also C.8.2.4 Defect notification and recall,
c) Consult external stakeholders and facilitate participation, as appropriate, where significant changes may potentially impact their needs and expectations,
d) Ensure all marketing communication data complies with section 0 Data,
e) Ensure that communications are covert where it is necessary to safeguard the legitimate needs and expectations of stakeholders and comply with section C.4.2.10 Access.
f) At least annually publically publish performance data covering:
   - Health and safety performance,
   - Environmental performance,
   - Commercial performance,
   - Commercially responsibility performance, [S]
   - Social responsibility performance, [G]

The organisation shall designate staff who are authorised to communicate with external bodies and the media – refer to section C.2.2 Responsibilities and authorities.

See also section C.3.2 Marketing.

C.2.5.2.3. Whistleblowing

∞ The organisation shall define whistleblowing arrangements that include:

a) The legal rights of personnel to whistleblow – refer to section C.1.5 Legislation and standards,
b) Duty of personnel to whistleblow as per section **Error! Reference source not found.** Whistleblowing,
c) Internal independent persons that may be contacted,
d) External independent bodies that can be contacted,
e) Scope of whistleblowing,
f) How confidentiality will be maintained,
g) A commitment that personnel will not be disciplined or any other adverse action taken against them for responsibly whistleblowing,
h) Communication of the whistleblowing arrangements to the organisation's relevant internal stakeholders as per section C.2.5.2.1 Internal communication, consultation, participation and reporting,
i) Communication of the whistleblowing arrangements to the organisation's relevant external stakeholders as per section C.2.5.2.2 External communication, consultation, participation and reporting. [S]
j) Maintenance of an approved independent supplier, irrespective of national legislation, providing whistleblowing services – refer to section 0 Suppliers. [S]

C.2.5.3. Management of conflict

∞ The organisation shall endeavour to minimize the potential for significant and highly significant conflict by ensuring:

a) Awareness of stakeholders needs and expectations and effectively and efficiently interacting with them – refer to sections C.1.1 Foundation planning and C.2.5 Interactions.
b) Structures and processes are properly planned, designed and implemented based on or informed by prospect and risk assessments, as applicable – refer to section **Error! Reference source not found.** Prospect and risk assessment planning, 0 Normal Structures and Processes and 0 Contingency Structures and Processes.
c) All personnel under its control are aware that they have a right and duty not to perform work if there is any significant or highly significant issue relating to health, safety, environment or good/service quality and that disciplinary action will not follow because of reasonably exercising this right. See also sections C.2.2 Responsibilities and authorities and C.2.4.2 Induction.

The organisation shall establish and maintain formal arrangements for managing situations where personnel stop work when they have legitimate concerns and other potential conflicts arising in the workplace. The responsible manager shall consult expert advice, as necessary, and only allow work to recommence when there is sufficient confidence that it is reasonable to do so. See also sections C.8.2.3 Intentionally halted processes and **Error! Reference source not found.** Whistleblowing.

Where significant violations of the management system or other mandatory requirements by employed personnel the organisation shall take disciplinary action as per section C.2.4.8 Discipline.

C.3. Commerce

∞ The organisation shall formally define arrangements for controlling and guiding the management of commerce including:

C.3.1 Entity maintenance,
C.3.2 Marketing,
C.3.3 Contracts,
C.3.4 Finance.

The organisation shall ensure that commercial management is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

C.3.1. Entity maintenance

∞ The organisation shall record its current and any previous purpose and status, together with any organisations that it is directly related to.

The organisation shall have arrangements for:

a) Maintaining its legal status that provides the basis for conducting commercial operations aligning with its purpose, strategy, policy and objectives,
b) Maintaining relationships with relevant special interest groups.

C.3.2. Marketing

∞ The organisation shall establish and maintain arrangements for identifying, anticipating and satisfying customer and other stakeholder needs and expectations profitably or in a financially viable way, appropriate to the size and type of organisation, including:

a) A marketing plan forming part of or harmonising with the strategic plan required by section C.1.2 Strategic plan
b) Development and protection of brand(s) and intellectual property – see also sections C.4.4 Conventions and C.3.3 Contracts,
c) Media that accurately, simply and transparently communicates the benefits and features of the organisation's goods and services,
d) The collection, collation and analysis of financial, goods/services, market and competitor data – refer to sections C.10.2 External reactive investigation, C.11.6 Survey and benchmarking and C.4.3.2 Indicators,
e) Agreed objectives as per section C.1.4 Objectives,
f) A process for receiving, filtering and responding to enquiries and otherwise interacting with existing and potential customers and other stakeholders – refer to section C.2.5.2 Communication, consultation, participation and reporting,
g) Surveying the external commercial environment and the collecting and collating data – refer to sections C.10.2 External reactive investigation, C.11.6 Survey and benchmarking and C.4.3.2 Indicators,

h) Identifying, assessing and evaluating commercial prospects and risks that fulfil the organisation's purpose and strategic/marketing plans – refer to section C.1.6 Prospect and risk assessment,
i) Converting appropriate prospects into orders for the organisation's goods and/or services – refer to section C.3.3.1 Pre-Contract.

The organisation shall:

k) Communicate with external stakeholders as per section C.2.5.2.2 External communication, consultation, participation and reporting,
l) Maintain customer care and support arrangements.

The organisation's marketing structures and processes shall, as appropriate, within its sphere of influence, promote:

a) Commercial responsibility, [S]
b) Social responsibility. [G]

C.3.3. Contracts

∞ The organisation shall Implement contractual arrangements that:

a) Support normal structures and normal process - 0 Normal Structures and Processes,
b) Support contingency structures and contingency processes – refer to section 0 Contingency Structures and Processes,
c) Promote the prevention and detection of bribery, corruption, fraud and commercially irresponsible practices that could influence commercial negotiations or the award of contracts – refer to sections C.1.6 Prospect and risk assessment and C.2.2 Responsibilities and authorities,
d) Safeguard intellectual property.

The organisation shall, within its sphere of influence, promote social responsibility. [G]

Significant contracts shall only be completed after an appropriate process of due diligence has been performed that takes account of prospect and risk assessment – refer to C.1.6 Prospect and risk assessment.

Contracts shall address confidentiality requirements, as relevant.

Negotiation processes shall be commercially responsible based on a plan agreed by the negotiating team. [S]

The organisation shall define a set of generic rules to be contained within contracts that promote:

- Commercially responsible outcomes. [S]
- Socially responsible outcomes. [G]

Contracts shall:

a) Define the relationship of the participating parties,
b) Be structured according to expert advice compliant with section C.2.3 Provision of expert advice and assistance,
c) Be compliant with the organisation's policy as per section C.1.3 Policy statement and be accurate, factual and reviewed before being offered to the other party(s),

d) Cover the care of stakeholder assets under the organisation's control or being used by the organisation, an associate, contractor or supplier.
e) Define or reference controlled data that will be provided to relevant parties with regard to:
   - The goods and/or services to be provided,
   - The requirements for approval or release of goods and services, procedures, processes or equipment,
   - The requirements for personnel competence and behaviour – refer to section C.2.4.4 Competence,
   - The management system requirements,
   - The control of non-physical assets including data,
   - The control of physical assets,
   - The control and monitoring of an external provider's performance to be applied by the organisation – refer to section C.6.1 Classification, vetting and control and C.6.4 Performance evaluation,
   - Periodic review of contract implementation progress – refer to section 0 Review and Action,
   - Any verification activities that the organisation, or its customer, or other stakeholders intends to perform at the external provider's premises,
   - The requirements for handling of external provider's property provided to the organisation.

Received and issued contract documents shall be controlled as per section C.4.2.5 Contract documents and data. Access to contractual data shall be appropriately restricted as per section C.4.2.10 Access.

Goods and services shall be procured from approved suppliers as per section 0 Suppliers.

Authority to sign contracts shall be given to designated personnel according to the potential associated risks in compliance with section C.2.2 Responsibilities and authorities.

Contractual processes shall be subject to monitoring and review as per sections 0 Reactive investigation – events, 0 Planned monitoring and 0 Review and Action.

Contract reviews conducted during pre-contract, contract implementation and contract change shall ensure that:

f) Goods and services requirements are defined, agreed and comply with the organisation's management system, legislation and adopted standards,
g) Contract or order requirements differing from those previously expressed are resolved,
h) The organisation is able to meet the defined requirements.

Records of contract reviews shall be retained as per section C.4.2.9 Records.

C.3.3.1. Pre-Contract

∞ Proposed contracts shall be prospect and risk assessed as per section C.1.6 Prospect and risk assessment taking account of stakeholder needs and expectations.

Where the organisation is cooperating and coordinating with another organisation(s) to supply a good or service the management system(s) to be used in the contract implementation shall be defined.

The organisation shall control processes prior to the enactment of a commercial contract and cover, as applicable:

a) The control of the preparation of proposals, quotations and tenders applicable to the organisation and take account of the size, complexity and frequency of delivery of the good and/or service delivery,
b) Identification and approval suppliers as per section 0 Suppliers and seek multiple proposals, quotations and tenders,
c) The determination of customer or supplier and other stakeholder requirements, including care of assets,
d) Issues requiring cooperation and coordination,
e) Seeking equitable win-win situations during contract negotiation compliant with sections C.1.2 Strategic plan and C.1.3 Policy statement,
f) Conducting investigations and inspections as necessary to scope and structure the contract and minimise uncertainties as per section C.11.5 Inspection,
g) Preparation and review proposals, quotations and tenders appropriate the associated prospect and risk,
h) Preparation of revised proposals, quotations or tenders if the potential customer changes the specification.
i) Ensuring there is sufficient competence to deliver what is requested,
j) Confirming an adequate good and/or service delivery capability,
k) Commercial and other relevant prospects and risks are acceptable,
l) Confirming transaction is within assigned authority under section C.2.2 Responsibilities and authorities,
m) Proposed expenditure does not exceed the approved budget or permission to exceed it has been approved as per section C.3.4 Finance.

Contracts shall, as applicable, address:

n) Communication as per section C.2.5.2 Communication consultation, participation and reporting,
o) Deliverables including timing and location,
p) Payments,
q) Contingencies,
r) Conventions as per section C.4.4 Conventions

With respect to competitive tendering, the bid price shall take account of:

s) The associated prospects and risks including the complexities as per section C.1.6 Prospect and risk assessment;
t) Market knowledge and data – refer to section C.3.2 Marketing,
u) Profit expectation.

Significant quotations and tenders shall be independently reviewed against approved criteria established by the organisation by competent persons – refer to section C.2.4.4 Competence.

C.3.3.2. Failure to establish a contract

∞ Following a failure to establish a contract the organisation shall seek reasons and/or data and conduct a review to support continual improvement – see section 0 Review and Action .

C.3.3.3. Contract implementation

∞ Significant customer contracts shall be reviewed to confirm that the arrangements are still valid.

Contract implementation plans shall be created or updated, as appropriate and shall comply with section **Error! Reference source not found.** Normal Structures and Processes.

Where appropriate, contracts or aspects of contracts shall be managed as projects – refer to section C.7.1.5 Projects.

Contractual requirements shall be subject to periodic verification and monitoring to ensure compliance as per section 0 Planned monitoring.

The organisation shall have arrangements for negotiating and enacting contract variations and shall include appropriate review.

Contract implementation progress review(s) shall be periodically conducted and comply with the contract – refer to sections C.3.3 Contracts and 0 Review and Action.

Change shall be managed taking account of contracts – refer to section C.9.1 Change lifecycle.

As applicable on contract completion access to infrastructure and data rights granted under the contract shall be withdrawn as per section C.2.4.9 Leaving.

C.3.3.4. Post Contract

∞ Implementation of the contract requirements shall be verified.

For significant projects the organisation shall conduct a post contract validation and review to determine opportunities for improvement.

Where applicable, review subcontractor performance and record data to aid future selection as per section C.6.4 Performance evaluation.

Monitor customer satisfaction as per sections 0 Reactive investigation, and 0 Planned monitoring and if necessary initiate contingency processes as per section C.8.5 Event response.

C.3.4. Finance

∞ Significant financial situations and decisions shall be subjected to prospect and risk assessment as per section C.1.6 Prospect and risk assessment.

The organisation shall create or adopt and configure a commercial accounting database as per section C.4.3.1 Accounts.

The organisation shall create a budget forecast and approve according to section C.12.2 Review. Expenditure shall not exceed the budget without prior approval.

Annual and periodic financial reports shall be prepared for management review and action including mandatory reporting as per sections 0 Management review scheduling and C.2.5.2.2 External communication consultation, participation and reporting.

Financial records shall be independently audited to meet stakeholder requirements.

C.3.4.1. Revenue

∞ The organisation shall have arrangements for:

a) Raising timely invoices and submitting them to customers in compliance with contracts covered under section C.3.3.3 Contract implementation.
b) Receiving payments,
c) Tracking payment of invoices and handling overdue payments including debt recovery.

Significantly late payment or situations involving legal action shall comply with section 0 Reactive investigation.

C.3.4.2. Payments

∞ Managers shall ensure that payment is

a) Within assigned authority under section C.2.2 Responsibilities and authorities,
b) Does not exceed the approved budget or approval to exceed it has been obtained.

Arrangements shall be established for collecting appropriate data and determining that contractual payments are compliant with section C.4.2.10 Processing. See also section C.6.3 Receipt.

Payments shall be approved and paid by designated personnel as per C.2.2 Responsibilities and authorities.

All payments due to internal and external personnel and bodies shall be paid promptly in compliance with contractual arrangements made under section C.3.3 Contracts.

The organisation shall responsibly pay taxes to the government where its principal operations are located, based on a calculation of the profits generated within this location. [S]

Payment transactions not complying with the above arrangements shall initiate action as per section 0 Reactive investigation.

C.3.4.3. Banking and cash

∞ The organisation shall establish and maintain robust prospect and risk assessed banking arrangements meeting the needs of the organisation compliant with sections C.1.6 Prospect and risk assessment, 0 Suppliers and the strategic plan covered in section C.1.2 Strategic plan.

On receipt of bank statements, the organisation shall reconcile the data with the commercial accounts data as per section C.4.3.1 Accounts.

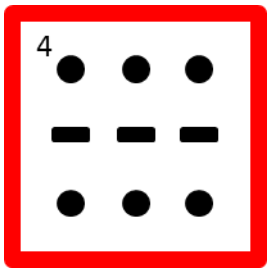
Ensure that all cash received from customers is paid into a bank, or other secure depository, as soon as practicable and not left onsite, apart from a petty cash float not exceeding a specified level. Significant amounts of cash shall be transported according to prospect and risk assessed arrangements as per section C.1.6 Prospect and risk assessment and where necessary via approved suppliers as per section 0 Suppliers.

Petty cash shall be:

a) Kept secure,
b) Recorded,
c) Reconciled with commercial accounts at a specified periodicity as per section C.4.3.1 Accounts.

Any significant undesired events involving banking or cash shall be handled as per as per sections 0 Reactive investigation

C.4. Data



∞ The organisation shall formally define arrangements for controlling and guiding the management of data emanating from inside and outside of the organisation covering:

C.4.1 Management system structure
C.4.2 Data control
C.4.3 Data processing
C.4.4 Conventions.

The organisation shall ensure that data management is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Data structures shall be designed as per section C.7.1 Structure and process design and where appropriate purchased, processed and maintained by approved suppliers as per section 0 Suppliers.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

Some of the arrangements shall be covert, where a need has been identified – refer to section A.4 Covert management arrangements.

C.4.1. Management system structure

∞ The organisation shall document the management system covering all processes to a level appropriate to the potential impact of the various facets of the organisation's performance including commercial, goods and services quality, personnel health, safety and welfare, environmental impact, valuable assets, reputation and multiple aspects of overall security – refer to Appendix 6: General Aspects of an Organisation.

The documented management system structure and its elements shall:

a) Be suitably and sufficiently documented to satisfy stakeholder needs and expectations,
b) Address the general requirements and the twelve specific elements of this MSS – refer specifically to section B.3 Stakeholder specific requirements,
c) Include:
   - A description of the structure and functioning of the management system and its component types,
   - A policy statement,
   - Management procedure(s) addressing this MSS and responsibilities assigned,
   - Documents, where required, defining the conduct of work processes to meet the needs and expectations of stakeholders,
d) Have an assigned responsible manager(s) refer to section C.2.2 Responsibilities and authorities,
e) Be fit for purpose and address 'what, how, where, who, when and why', as applicable,
f) Be readily navigable,
g) Facilitate effective and efficient planned monitoring,
h) Be capable of being effectively and efficiently reviewed and if necessary modified to ensure it remains aligned with stakeholder needs and expectations and where possible improved,

i) Collectively demonstrate compliance with adopted management system standards and management system legislation, as applicable,
j) Reference significant superior, peer and subordinate related documents,
k) Be managed overtly or covertly as appropriate according to section C.1.2 Strategic plan and access controlled as per section and C.4.2.10 Access.

The arrangements shall define when a document needs to be available at the point that the activity is performed and if it should be followed step-by-step or just referred to as necessary.

A master list of management system documents shall be maintained and controlled as per section C.4.2 Control.

C.4.2. Data control

∞ The organisation shall designate a person or persons having responsibility for coordinating data control covered within the classes below – refer to section C.2.2 Responsibilities and authorities.

Equipment requirements that store data is defined in sections C.5.4.3.4 Data equipment and C.5.4.3.5 Mobile plant and equipment.

Data control arrangements shall cover:

C.4.2.1 Databases
C.4.2.2 Internal documents
C.4.2.3 External documents
C.4.2.4 Library
C.4.2.5 Contract documents and data
C.4.2.6 Infrastructure and goods documentation and data
C.4.2.7 Marketing literature and website
C.4.2.8 Computer software
C.4.2.9 Records
C.4.2.10 Access

The management arrangements for controlling data shall define, as applicable, distribution, access, retrieval, use, access, change notification, storage, preservation and retention with respect to the above classes of data.

Where data is managed remotely from the prime location, it shall meet equivalent or enhanced standards based on or informed by prospect and risk assessment. See also sections C.2.1.1 Remote working, C.5.4.3.4 Data equipment and C.5.4.3.5 Mobile plant and equipment.

The control of data shall be overt or covert as per section C.1.2 Strategic plan. See also section A.4 Covert management arrangements.

Data received from a supplier shall comply with section C.6.3 Receipt.

C.4.2.1. Databases

∞ The organisation shall:

a) Designate responsible persons to administer databases – refer to section C.2.2 Responsibilities and authorities,
b) Establish and maintain databases to meet the requirements of the organisation and list in a schedule,
c) Ensure databases have access control appropriate to the significance of the data stored as per section C.4.2.10 Access,

The database administrator shall ensure that data is up to date and where appropriate verified and validated.

Computer database software shall be managed as per section C.4.2.8 Computer software.

Single integrated databases shall be established except where it can be demonstrated that it will not add significant value. [S]

C.4.2.2. Internal documents

∞ Internal documents shall be logically titled and numbered and comply with section C.4.4 Conventions and classification of structures and processes as per section C.1.1 Foundation planning.

The detail contained within work instructions shall be suitable and sufficient for the purpose of the task and enable it to be satisfactorily completed by personnel of a defined competence – refer to section C.2.4.4 Competence.

Internal documents may reference external controlled documents to avoid duplication.

The organisation shall maintain a schedule of all internal controlled document types and include the responsible persons for their preparation, review, issue and distribution.

Controlled documents under development shall be suitably marked to indicate their status and dated.

All documents shall be effectively reviewed by the relevant internal stakeholders prior to their approval and will be recorded and dated.

The responsible person(s) shall notify relevant personnel when an internal controlled document has changed as per section C.2.5.2.1 Internal communication, consultation, participation and reporting. All superseded documents shall be destroyed, clearly marked superseded or made inaccessible to normal users.

The responsible person shall maintain a database listing all internal controlled documents and their current status.

All uncontrolled copies of documents shall be clearly marked as ‘uncontrolled’.

New employees shall be formally issued with the required controlled documents on entering the organisation and withdrawn on their departure as per section C.2.4 Employment life cycle.

Retain records as per section C.4.2.9 Records.

C.4.2.3. External documents

∞ The organisation shall

a) Designate a person(s) responsible for controlling external controlled documents – refer to section C.2.2 Responsibilities and authorities,
b) Identify key non-contract external documents that have an impact on the organisation's operations and are required to be controlled and recorded in a schedule.

External documents shall be controlled as per internal documents covered in section C.4.2.2 Internal documents if they are made accessible or issued outside of the external document controller's system.

Documents supplied with goods essential to their use, operation or maintenance shall be retained by the organisation and made available to relevant personnel – refer to section C.6.3 Receipt.

C.4.2.4. Library

∞ If applicable to its functionality, the organisation shall:

a) Create a data reference library to meet the explicit knowledge requirements of the organisation,
b) Designate a person(s) responsible for controlling the library – refer to section C.2.2 Responsibilities and authorities,
c) Maintain a schedule of the library contents including standards, regulations, codes and other relevant references relevant to the operation of the organisation. See also C.1.5 Legislation and standards,
d) Where a need has been identified, hold superseded reference documents clearly marked as 'Superseded' and segregated from current copies,
e) Include external controlled documents, as applicable, as per section C.4.2.3 External documents,
f) Conduct periodic checks that library documents reconcile with appropriate published catalogues of databases and take corrective action as per section C.9.2 Corrective and preventive action,
g) When documents are revised, carry out reviews to identify any potential impact on the organisation's structures and processes and required management actions as per section 0 Review and Action.

Library documents shall be controlled as per internal documents covered in section C.4.2.2 Internal documents if they are made accessible or issued outside of the library.

C.4.2.5. Contract documents and data

∞ Documents and data, received and issued as part of pre or post contract commercial processes shall be managed as controlled documents and maintained in orderly secure systems compliant with sections C.4.2.2 Internal documents, C.4.2.3 External documents and C.4.2.10 Access. See also C.3.3 Contracts.

C.4.2.6. Infrastructure and goods documentation and data

∞ The organisation shall ensure all infrastructure and goods documentation, including personal protective equipment documentation, is preserved from receipt to issue to personnel, data centres, archives or delivery to customers or other stakeholders, as applicable.

Infrastructure and goods data shall be accessible by personnel who need it at the location where it is needed as per section C.4.2.2 Internal documents, C.4.2.3 External documents and C.4.2.4 Library.

Infrastructure and goods data shall be updated following modifications, new purchases and decommissioning or demolition as well as new acquisitions. Refer to section 0 Change.

C.4.2.7. Marketing literature and website

∞ The organisation's marketing data and web sites shall:

a) Be factual, current and informative without being misleading,
b) Comply with stakeholder contracts, agreements and licenses including scope of accreditations and certifications,
c) Comply with the organisation's policy as per section C.1.3 Policy statement,
d) Comply with the organisation's conventions as per section C.4.4 Conventions.

Refer also to section C.2.5.2.2 External communication, consultation, participation and reporting.

C.4.2.8. Computer software

∞ The organisation shall evaluate its needs for computer software including security and multiple access requirements prior to purchase or internal development via an appropriate prospect and risk assessment as per sections C.1.6 Prospect and risk assessment, C.4.2.10 Access and C.4.2.11 Loss and corruption.

The installation of operational software on the organisation's systems shall be controlled.

The organisation shall maintain a schedule of the software used to manage its operations and include:

a) Its developer or supplier, license details and issue, as applicable,
b) The designated responsible person within the organisation,
c) Its purpose.

Software and software support processes shall be procured from approved suppliers as per section 0 Suppliers.

Modifications to software packages shall be discouraged and limited to necessary changes, which shall be strictly controlled as per section 0 Change.

Databases shall be managed as per section C.4.2.1 Databases.

Data security is covered in sections C.4.2.10 Access and C.4.2.11 Loss and corruption.

C.4.2.9. Records

∞ The organisation shall:

a) Identify types of records required to meet the organisation's and stakeholders requirements, the media and the retention period, and list in a schedule or other suitable instrument – refer to section C.1.5 Legislation and standards,
b) Maintain a suitable and sufficient secure archive for all record requirements,
c) Ensure all required records are systematically generated through the operation of organisation processes and entered into the record storage systems,
d) Periodically destroy archived records required by its record schedule.

The organisation shall generate suitable and sufficient records compliant with the schedule and able to demonstrate compliance with the current and previous versions of the organisation's management system, facilitate planned monitoring and assurance and to facilitate event investigation.

Records shall be authorized and dated by the creator at the time of generation.

Records found to be false or inaccurate shall be rectified and a record made demonstrating the change as per section C.9.2 Corrective and preventive action.

Record archives shall satisfy stakeholder requirements – refer to sections C.1.5 Legislation and standards and B.3 Stakeholder specific requirements and take account of risks as per section C.1.6 Prospect and risk assessment.

Records shall be protected from loss, destruction, falsification, unauthorized access and unauthorized release, in accordance with legislation, contractual and the organisation's requirements, and controlled as per section C.4.2.10 Access.

C.4.2.10. Access

∞ Data shall be structured and managed to allow effective and efficient access allowing:

a) Personnel to fulfil their post or role,
b) Stakeholders to reasonably access data relating to them and to request corrections or deletions as applicable,
c) Data to be maintained appropriately overt or covert as per section C.1.2 Strategic plan.

A registration and deregistration system shall be established and maintained to restrict access according to authorisation and manage secret authentication data – refer to section C.2.2 Responsibilities and authorities.

As appropriate, effective use of cryptography controls shall be implemented to protect the confidentiality, authenticity and/or integrity of data, including life time use and protection of cryptographic keys.

See also section C.2.5.2 Communication, consultation, participation and reporting. Physical access protection barriers are covered in section C.5.4.5 Access, egress and protective barriers.

C.4.2.11. Loss and corruption

∞ The organisation shall ensure that:

a) Data loss and corruption controls are risk based or risk informed to prevent accidental loss or theft as per section C.1.6 Prospect and risk assessment,
b) Arrangements are maintained to detect, prevent and recover from malware,
c) All areas where confidential information is stored are secure with entry only permitted to appropriate organisation staff as per sections C.5.4.5 Access, egress and protective barriers and C.2.2 Responsibilities and authorities,
d) Access to personnel confidential information is restricted to designated staff – refer to section C.2.2 Responsibilities and authorities,

e) Data access with appropriate permissions is provided to personnel – refer to section C.2.4.2 Induction,
f) Password or alternative controls, as appropriate, are applied to restrict the reading and modification of electronic documents,
g) Locks and/or passwords etc. are changed if a breach of security is detected or suspected – refer to 0 Contingencies,
h) Computer data is backed up against accidental and deliberate theft guarded from common causes of failure,
i) All areas subject to restricted entry are secured when occupied or unattended, as appropriate, as per section C.5.4.5 Access, egress and protective barriers,
j) Any client contract specific security requirements are implemented – refer to section C.3.3 Contracts.

Where data is under the control of external organisations they shall be approved suppliers and appropriately monitored as per sections 0 Suppliers and 0 Planned monitoring. The data control requirements in this section shall be covered in contracts, as applicable, as per section C.3.3 Contracts.

C.4.3. Data Processing

∞ The organisation shall establish and maintain a schedule of essential automated and non-automated data processing tasks required to support the operation of the organisation.

Data processing, where appropriate, shall employ validated statistical methods as per section C.1.8 Management tools and techniques.

C.4.3.1. Accounts

∞ The organisation shall adopt and configure an accounting database(s) compliant with sections C.4.2.1 Databases, C.4.3.1 Accounts and C.4.2.8 Computer software.

The designated responsible person shall periodically reconcile the accounts with other existing databases or results of inspections. Major discrepancies shall be treated as events as per section 0 Reactive investigation and corrective action and preventive action taken as per section C.9.2 Corrective and preventive action.

C.4.3.2. Indicators

∞ Suitable and sufficient lagging indicators, coincident indicators and leading indicators and their means of generation shall be defined to support the effective monitoring of the organisation and projects and management review processes to facilitate effective and efficient management control – refer to sections 0 Reactive investigation – Events, 0 Planned monitoring, 0 Review and Action and Appendix 6: General Aspects of an Organisation.

Arrangements shall be defined for processing indicators, as required.

Key performance indicators shall be defined, as appropriate, to the size and complexity of the organisation:

a) Covering all facets of the organisation's performance including commerce, health, safety, environment, goods and services quality etc.,

b) Covering commercial responsibility performance, [S]
c) Covering social responsibility performance, [G]
d) Indicating the degree that customer and other stakeholder believe that requirements have been met,
e) Indicating the degree that structures and processes are effective and efficient,
f) Cover reactive and planned monitoring outputs,
g) Cover the twelve principal elements of this MSS – refer to Figure 4: Universal Plan-Do-Check-Act Twelve Element Structure,
h) Be arranged into a multilevel hierarchical structure appropriate to the size and complexity of the organisation. [S]

Changes in key performance indicators shall be monitored, investigated and analysed for statistical significance and suitably reported for management review and action conducted according to section 0 Review and Action.

Retain records as per section C.4.2.9 Records.

C.4.4. Conventions

∞ Conventions shall be established to create uniformity and orderliness supporting more effective and efficient processes, communication and the promotion of the organisation's brand. [S] See also sections C.2.5.2 Communication, consultation, participation and reporting and C.3.2 Marketing.

Conventions shall be defined for process inputs and outputs identification requirements – refer to section C.7.1.1 Structure and process definition.

Where practicable, colour coded communication should not unduly discriminate against those with a colour sight disability – refer to sections C.1.3 Policy statement and C.2.4.4.4 Fitness.

Conventions used as management controls, e.g. signage, shall, as appropriate, take account of special classes of personnel – refer to sections C.2.4.4.4 Fitness and C.1.6.5 Prospect and risk improvement.

C.4.4.1. Style and colour

∞ Define style and area of application covering, as applicable: [≠μ]

a) Logos, brands, trademarks and service marks,
b) Typefaces,
c) Colour.

C.4.4.2. Nomenclature

∞ Systems of nomenclature shall wherever practicable be standardised and hierarchical to aid communication as per section C.2.5.2 Communication, consultation, participation and reporting.

Nomenclature for the organisation's structures and processes should wherever practicable align with personnel defined competence requirements – refer to section C.2.4.4 Competence.

C.4.4.3. Dimensions

∞ Systems of dimensions shall wherever practicable be standardised to aid accurate communication as per section C.2.5.2 Communication, consultation, participation and reporting, align with personnel

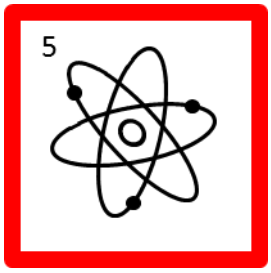
competences as per section C.2.4.4 Competence and meet stakeholder needs – refer to section C.7.1 Structure and process design .

C.4.4.4. Language

∞ Language(s) used shall comply with the organisation's policy and meet the needs of stakeholders – refer to sections B.1 Scope of organisation's arrangements and C.1.3 Policy statement.

Organisations shall endeavour to use universal and consistent terminology when communicating with stakeholders verbally or in writing – refer to Definitions.

C.5. Matter and Energy



∞ The organisation shall formally define arrangements for controlling and guiding the management of matter and energy covering:

C.5.1 Selection and combination
C.5.2 Handling and use
C.5.3 Processing
C.5.4 Infrastructure
C.5.5 Maintenance, inspection and testing
C.5.6 Waste and emissions.

The organisation shall ensure that management of matter and energy is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.5.1. Selection and combination

∞ Organisations shall be able to demonstrate that selected matter and energy and their form, structure, quantity and combination used individually or in combination meet the needs and expectations of stakeholders. They shall be fit for purpose and not cause or threaten undue harm to personnel, the environment or other assets and shall be demonstrated by prospect and risk assessment as per section C.1 Assessment and Development of Controls. The total life cycle of materials shall be considered within and outside of the organisation including the generation of waste and emissions addressed in section C.5.6 Waste and emissions.

The organisation shall maintain a schedule of types of material and energy used or generated and information regarding the nature of the material, its use, associated structures and processes within the organisation's operations – see also C.4.1 Management system structure.

C.5.2. Handling and use

∞ Matter and energy shall be suitably and adequately contained and managed at all times to maintain its integrity and prevent loss or harm to personnel and the environment based on:

a) Prospect and risk assessment as per section C.1.6 Prospect and risk assessment,
b) Compliance with identified legislation and standards as per section C.1.5 Legislation and standards.

Manual handling risk assessments shall be performed for all significant amounts of individually manually handled objects and materials, and controls established as per section C.1.6 Prospect and risk assessment. Processes should be optimised as per section C.7.1 Structure and process design and as much as practicable potentially harmful manual handling avoided.

The locations, amounts of material and energy shall be recorded and accounts managed as per section C.4.3.1 Accounts.

C.5.2.1. Receipt

∞ Following receipt of matter and energy the organisation shall confirm that it is compliant with the purchase order as per section C.6.3 Receipt.

C.5.2.2. Transport

∞ The organisation shall ensure that matter and energy are transported in compliance with planned arrangements that take account of:

a) Retention of matter and energy integrity including data content, as applicable,
b) Goods security and unauthorised access,
c) Applicable legislation and standards – refer to section C.1.5 Legislation and standards,
d) Supplier instructions,
e) Prospect and risk assessments – refer to section C.1.6 Prospect and risk assessment,
f) Personnel and environmental safety and health,
g) Contractually agreed arrangements – refer to section C.3.3.3 Contract implementation,
h) Best use of resources.

C.5.2.3. Storage

∞ The organisation shall ensure that matter and energy are stored in compliance with planned arrangements that take account of:

a) Applicable legislation and standards – refer to section C.1.5 Legislation and standards,
b) Suppliers instructions,
c) Prospect and risk assessments – refer to section C.1.6 Prospect and risk assessment,
d) Project plans – refer to section C.7.1.5 Projects,
e) Contractually agreed arrangements – refer to section C.3.3.3 Contract implementation.

The organisation shall monitor stored matter and energy at suitable intervals to confirm that:

f) It has not deteriorated,
g) Is within shelf life,
h) Labelled or otherwise identifiable,
i) It is adequately segregated from other matter and energy, as applicable.

Unfit matter or energy shall be:

j) Labelled and/or adequately separated from compliant matter and energy,
k) Returned to the supplier, corrected as per section C.9.2 Corrective and preventive action or disposed of as waste as per section C.5.6 Waste and emissions.

C.5.3. Processing

∞ The organisation shall ensure that goods are designed, manufactured, used, processed, installed and disposed of in compliance with planned arrangements that take account of:

a) Applicable legislation and standards – refer to section C.1.5 Legislation and standards,
b) Regulatory and licensing requirements,
c) Suppliers instructions,

d) Prospect and risk assessments – refer to section C.1.6 Prospect and risk assessment,
e) Project plans – refer to section C.7.1.5 Projects,
f) Contractually agreed requirements – refer to section C.3.3.3 Contract implementation.

Ensure personnel working on premises and other sites not under the direct control of the organisation are aware of the local energy and matter potential hazards as per section C.2.4.4 Competence

C.5.4. Infrastructure

∞ Infrastructure design, operation and maintenance shall cater for:

a) The needs of personnel – refer to section C.1.6.1 Prospect and risk assessment planning,
b) Variation in personnel fitness – refer to section C.2.4.4.4 Fitness,
c) The storage, use and processing of energy and matter – refer to sections C.5.2 Handling and use, C.5.3 Processing and **Error! Reference source not found.** Normal Structures and Processes.

Infrastructure arrangements shall cover:

C.5.4.1 Facilities,
C.5.4.2 Work environment,
C.5.4.3 Plant and equipment,
C.5.4.4 Configuration,
C.5.4.5 Access, egress and protective barriers.

C.5.4.1. Facilities

∞ The organisation shall:

a) Establish controls to ensure facilities:
   - Are fit for purpose,
   - Are healthy and safe including safe access and protection from vehicular traffic,
   - Have suitable and adequate welfare arrangements,
   - Protect and nurture the environment,
   - Are secure and create suitable environments for the preservation of plant, equipment, documents, data, goods, materials and substances,
   - Are located and designed to minimize potential threats and hazards from the environment and unauthorized access,
   - Contain suitable, sufficient and secure systems to support personnel, operation of plant and equipment and processes performed within the facility.
b) Maintain a data file recording the material state of the organisation's facilities that it is responsible for including details of significant hazards,
c) Ensure that elements of facilities are assigned suitable and sufficient nomenclature to facilitate their identification and their effective and efficient management – refer to section C.4.4 Conventions,
d) Subject organisation facilities to an prospect and risk assessment as per section C.1.6 Prospect and risk assessment,
e) Ensure that where necessary access to facilities is controlled with entry only permitted to designated personnel – refer to section C.2.2 Responsibilities and authorities and section C.5.4.5 Access, egress and protective barriers,
f) All areas subject to restricted entry are secured when unattended,
g) Establish facilities contingency arrangements as per section 0 Contingencies,

h) Establish arrangements to ensure that facilities are regularly cleaned and waste is removed as per section C.5.6 Waste and emissions,
i) Manage client facilities infrastructure when assigned – refer to sections C.3.3 Contracts,
j) Periodically monitor facilities effectiveness and compliance with controls as per section 0 Planned monitoring.

C.5.4.2. Work environment

∞ Work environments shall:

a) Be subjected to a prospect and risk assessment as per section C.1.6 Prospect and risk assessment and include regular human use of potentially hazardous equipment such as display screen equipment,
b) Nurture the health, safety, welfare and wellbeing of personnel and not negatively impact any aspect of fitness – refer to sections C.7.1 Structure and process design, C.2.4.4.4 Fitness and Appendix 6: General Aspects of an Organisation,
c) Implement a clear desk policy, as applicable, to ensure the security of data,
d) Be segregated into zones where process interactions may negatively impact prospect and risk a risk,
k) Be monitored as per section 0 Planned monitoring.

C.5.4.3. Plant and equipment

∞ The organisation shall:

a) Purchase or hire equipment that has been subjected to a suitable and sufficient risk assessment as per section C.1.6 Prospect and risk assessment,
b) Evaluate the suitability of plant and equipment prior to purchase or hire,
c) Ensure plant and equipment is uniquely identified to aid its traceability – refer to C.4.4 Conventions,
d) Maintain a schedule of plant and equipment approved for safety and other critical activities – refer to section C.4.2.2 – Internal documents,
e) Hire plant and equipment, as necessary, from approved suppliers as per section 0 Suppliers,
f) Maintain, inspect and test plant and equipment as per section C.5.5 Maintenance, inspection and testing,
g) Maintain plant and equipment records as per section C.4.2.9 Records,
h) If plant or equipment goes outside of the organisation's control, check that it is satisfactory before returning it to service,
i) Ensure owned or hired plant and equipment is within maintenance, inspections and test date before using.
j) Ensure that arrangements are in place for storing, transporting and immobilising plant and equipment to preserve its integrity and guard against unauthorised access or vandalism – refer to section C.5.2 Handling and use,
k) Ensure plant and equipment is operated and maintained by competent personnel as per section C.2.4.4 Competence according to manufacturer's instructions as per section C.4.2.6 Infrastructure and goods documentation and data,
l) Ensure that plant and equipment is appropriately supervised and is safeguarded when unattended.

C.5.4.3.1. Personal equipment

∞ The organisation shall:

a) Shall select personal equipment that does not harm the person it is issued to – refer to section C.1.6 Prospect and risk assessment, C.7.1.1 Structure and process definition and C.7.2 Structure and process implementation.
b) Ensure that suitable and sufficient personal protective equipment (PPE) and Respiratory Protective Equipment (RPE) (such as hard hats, gloves, glasses, ear-defenders, high-visibility jackets etc.) are made available to employees free of charge,
c) Procure PPE and RPE from suitable suppliers as per section 0 Suppliers,
d) Provide storage to maintain PPE/RPE in fit for purpose condition.

C.5.4.3.2. Monitoring and measuring equipment

∞ The organisation shall:

a) Determine the need for measuring and test equipment to support structure and process conformity – refer to section C.7.1.1 Structure and process definition,
b) Provide and suitably maintain monitoring and measuring equipment – refer to section C.5.5 Maintenance, inspection, testing and calibration,
c) Evidence of suitability and status – refer to section C.4.2.9 Records.

C.5.4.3.3. Contingency equipment

∞ The organisation shall:

a) Determine the requirements for contingency equipment – refer to section C.8.2.2 Emergencies, Crises and Disaster Recovery,
b) Ensure that such equipment is suitable and sufficient, and regularly maintained, inspected and tested – refer to sections C.5.5 Maintenance, inspection, testing and calibration and C.8.3 Contingency arrangements testing.

C.5.4.3.4. Data equipment

∞ Fixed and portable equipment containing or having the potential to contain data shall be controlled over its complete life cycle according to its classification determined according the requirements of section C.1.1 Foundation planning.

As applicable, controls shall be established to support the management of data requirements covered in section 0 Data. Access to data shall be controlled as per sections C.4.2.10 Access and C.5.4.5 Access, egress and protective barriers .

The clocks of all relevant data processing systems within an organisation or security domain shall be synchronised to a single time reference.

C.5.4.3.5. Mobile plant and equipment

∞ Additional mobile plant and equipment arrangements shall be established:

a) To ensure it is only taken off site when permitted for a defined purpose,
b) To deter theft and prevent unauthorised access and interference as per section C.5.4.5 Access, egress and protective barriers,
c) To ensure that it is stored and used in suitable locations with appropriate supervision,
d) Ensure it is only connected to other appropriate plant or equipment as per section C.5.4.4 Configuration.

C.5.4.3.6. External fixed plant and equipment

∞ Additional arrangements for plant and equipment located remotely from the organisation's main facilities shall be established to:

a) Deter theft and prevent unauthorised access and interference as per section C.5.4.5 Access, egress and protective barriers,
b) Prevent interception of data, where relevant,
c) Ensure it is only connected to other appropriate plant or equipment as per section C.5.4.4 Configuration.

C.5.4.4. Configuration

∞ The organisation shall:

a) Control plant/equipment infrastructure configuration where it has the potential to significantly impact performance,
b) Verify plant/equipment configuration by suitable and sufficient inspections, as per section C.11.5 Inspection, to provide the required level of confidence to stakeholders,
c) Establish and maintain a plant/equipment configuration history to meet stakeholder needs compliant with section C.4.2.9 Records,
d) Only change permitted configuration as per section C.9.4 Structure and process change.

C.5.4.5. Access, egress and protective barriers

∞ Infrastructure design shall permit personnel to safely access and egress their workplace to fulfil their normal duties and take account of the requirements of section C.1.6 Prospect and risk assessment.

Infrastructure shall be segregated into zones, as necessary, to facilitate the control of personnel access and egress. Where required, barriers shall be established to prevent:

a) Unauthorised personnel access to data – see also C.4.2.10 Access,
b) Harm to personnel, assets or environments including,
c) Escape or loss of valuable or hazardous substances.

The means of controlled access and egress penetrating the barriers shall not compromise the barriers' integrity.

Secure areas shall be protected by appropriate entry controls to ensure that only authorized personnel are allowed access.

Physical protection against natural disasters, malicious attack or accidents shall be designed and applied.

C.5.5. Maintenance, inspection, testing and calibration

∞ The organisation shall define arrangements for managing:

C.5.5.1 Proactive maintenance, inspection and testing,
C.5.5.2 Reactive maintenance, inspection and testing,
C.5.5.3 Calibration.

The organisation shall:

a) Ensure that personnel report assets that are defective or overdue for maintenance, inspection, testing or calibration as per section 0 Reactive investigation – Events.
b) Segregate or restrict access to infrastructure, plant and equipment that is defective or undergoing maintenance, inspection, testing or calibration,
c) Ensure written instructions are defined and approved for internal maintenance, inspection, testing and calibration as per section C.4.2.2 Internal documents.
d) Ensure that assets are not modified where this will invalidate warranties or supplier risk assessments and that changes are managed as per section 0 Change.
e) Ensure internal maintenance, inspection and testing is conducted by competent personnel as per section C.2.4.4 Competence.
f) Maintain maintenance, inspection, test and calibration records as per section C.4.2.9 Records.
g) Ensure that hired asset maintenance, inspection and test requirements are communicated, understood, complied with and records are retained – refer to section C.4.2.9 Records.

C.5.5.1. Proactive maintenance, inspection and testing

∞ The organisation shall:

a) Maintain a schedule of identified maintenance, inspection, testing and calibration relating to its assets, and other assets for which it is responsible, compliant with its policy and objectives and informed by the requirements of manufacturers, legislation, standards, risk assessment and reactive investigation data – refer to sections C.1.3 Policy statement, C.1.4 Objectives, C.1.5 Legislation and standards, C.1.6 Prospect and risk assessment and 0 Reactive investigation – Events.
b) Schedule planned asset maintenance, inspection, testing and calibration requirements using a database.
c) Contracted maintenance, inspection, testing and calibration are conducted by approved suppliers as per section 0 Suppliers.
d) If appropriate, schedule remedial action or otherwise dispose of item as per sections C.9.2 Corrective and preventive action and C.5.6 Waste and emissions.

C.5.5.2. Reactive maintenance, inspection and testing

∞ The organisation shall define arrangements for the timely conduct of reactive maintenance, inspection and testing following the identification of defects during reactive investigation – refer to sections 0 Reactive investigation – Events and C.9.2 Corrective and preventive action.

C.5.5.3. Calibration

∞ The organisation shall:

a) Ensure internal calibration is conducted according to a formally defined process and covers, as applicable:
   - Identification of the type of equipment to be calibrated,
   - Maintenance of a schedule of equipment to be subjected to calibration – refer to C.4.2.1 Databases,
   - Identification of the calibration standard to be used,
   - Use of currently calibrated reference standards,
   - Tolerances and acceptance criteria,
   - Environmental conditions,
   - Special precautions,

- Guidance on cumulative effect of errors in the calibration chain,
- The sealing of adjustment devices to preserve integrity,
- Recording of the 'as found' errors before adjustment and the final calibration figures.

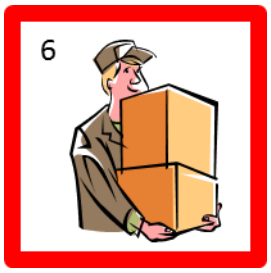
b) Ensure equipment is labelled with test/calibration validity date compliant with section C.4.4 Conventions.
c) Where applicable, ensure calibration correction factor information is made available where the device is being used.

C.5.6. Waste and emissions

∞ The organisation shall:

a) Design and operate processes to minimise waste using a waste controls hierarchy – refer to sections C.1 Assessment and Development of Controls and 0 Review and Action.
b) Identify and attempt to minimise the volume and toxicity of waste generation and designate areas for storage.
c) Segregate generated waste, designate areas for storage and dispose of waste streams according to local waste collection requirements, transport and recycling arrangements.
d) Maintain required licence(s) to cover wastes likely to be disposed of or processed within the scope of organisation's operations.
e) Use approved suppliers for transporting and processing waste as per section 0 Suppliers, unless managed internally.
f) Transport waste in enclosed or securely sheeted vehicles appropriate to the type of waste.
g) Ensure that waste containing data is treated appropriate to its classification – refer to section C.1.6.2 Classification of structures and processes,
h) Maintain records of amount and type of waste removed appropriate to legislation and contractual requirements – refer to sections C.1.5 Legislation and standards, C.3.3 Contracts and C.4.2.9 Records.
i) Monitor waste management as per section 0 Planned monitoring.

C.6. Suppliers



∞ The organisation shall formally define arrangements for controlling and guiding the management of suppliers including:

C.6.1 Classification and vetting
C.6.2 Specification and ordering
C.6.3 Receipt
C.6.4 Performance evaluation.

The organisation shall ensure that suppliers are capable of and deliver goods and services compliant with its policy, strategic plan, objectives, legislation and contracts – refer to sections C.1 Assessment and Development of Controls, C.3.3 Contracts and 0 Planned monitoring.

Suppliers supporting projects shall comply with appropriate requirements of section C.7.1.5 Projects.

Interaction with suppliers shall comply with section C.2.5 Interactions.

The organisation, shall within its sphere of influence promote commercial responsibility within its supply chain. [S]

The organisation, as applicable, shall engage in social dialogue with its suppliers and within its sphere of influence promote social responsibility in its supply chain. [G]

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.6.1. Classification, vetting and control

∞ The organisation shall:

a) Maintain definitions for classifying internal and external suppliers according to the potential to impact the organisation's performance as judged by its stakeholders as per section C.1.6.2 Classification of structures and processes, [≠µ]
b) Record its suppliers and their key details within a database as per section C.4.2.1 Databases,
c) Assess the potential impact that suppliers may have on the organisation's performance and classify them,
d) Unless the data is otherwise available, request critical suppliers to supply data demonstrating their management arrangements to deliver goods and/or services compliant with the organisation's policy and objectives – refer to sections C.1.3 Policy statement and C.1.4 Objectives,
e) As applicable request organisations to supply data regarding their:
   - Potential conflicts of interest,
   - Commercial responsibility policy, [S]
   - Social responsibility policy, [G]
f) Conduct a level of due diligence informed by the potential prospect and risk of making the organisation an approved supplier,
g) Assess suppliers classified as critical and approve those satisfying requirements,
h) Apply management control to suppliers according to their criticality classification, performance history and goods and/or services currently being supplied – see also section C.6.4 Performance evaluation,

i) Ensure suppliers of calibration and testing services have accreditation to relevant standard(s) – refer to section C.5.5.3 Calibration,
j) Ensure suppliers, as applicable, have sector specific accreditations required by stakeholders,
k) Schedule inspections and audits of suppliers of goods and services, as appropriate, to provide suitable and sufficient data to enable evaluation of suppliers and subcontractor performance against predefined criteria – refer to sections 0 Planned monitoring. And C.6.4 Performance evaluation,
l) Ensure that sufficient approved suppliers are available to provide redundancy, diversity and segregation informed by prospect and risk assessment – refer to section C.1.6 Prospect and risk assessment,
m) Maintain records of evidence to justify approval and use made of all critical suppliers as per section C.4.2.9 Records,
n) Audit or inspect critical suppliers if evidence is insufficient to provide sufficient confidence in the goods and/or the services being supplied as per section 0 Planned monitoring.

C.6.2. Specification and ordering

∞ The organisation shall:

a) Prepare specifications prior to ordering which are, depending on the significance of the goods or services:
   - Compliant with the organisation's contracts policy – refer to section C.3.3 Contracts,
   - Based on an analysis of the needs of the organisation and relevant stakeholders,
   - Prospect and risk based or prospect and risk informed,
   - Take account of management of change processes as applicable – refer to section 0 Change,
   - Compliant with and promotes the organisation's strategic plan, policy and objectives – refer to sections C.1.2 Strategic plan, C.1.3 Policy statement and C.1.4 Objectives,
b) Identify and specify the requirements for the good and/or the service to be purchased and determine the class of supplier required – refer to section C.6.1 Classification and vetting,
c) Review and approve technical content of orders,
d) If applicable, ensure that goods comply with the organisation's schedule of approved plant and equipment – refer to section C.5.4.3 Plant and equipment,
e) Where required by customer or other stakeholder, obtain approval to use supplier and the good or service,
f) Obtain quotations, evaluate them, ensure they comply with budgetary control and place order compliant with section C.3.3 Contracts,
g) As far as reasonably practicable within the limitations of quality, prospect, risk and commercial viability give a strong preference to placing orders with:
   - Commercially responsible suppliers, [S]
   - Local and socially responsible suppliers. [G]

C.6.3. Receipt

∞ Following receipt of goods and/or services the organisation shall confirm:

a) The condition and quantity of delivered goods,
b) The functionality of goods, as applicable,
c) The delivered goods and data reconcile with the purchase specification and delivery documents,
d) That the supplied goods meets or has met the required specification and is or was fit for purpose,

e) Conduct a level of due diligence for delivered critical goods, informed by the potential risk that it could be counterfeit or otherwise lacking in the required quality,
f) That the supplier's commercial obligations have been met such that there is no impediment preventing payment – refer to section C.3.4.2 Payments.
g) Significant problems with goods receipt reconciliation or quality have been managed as per section C.9.2 Corrective and preventive action.

Documents received with goods which are significant to its handling, operation, maintenance, condition or other aspects shall be managed as per section C.4.2.3 External documents.

The organisation shall investigate significant events during or following receiving goods or services as per section C.10.1 Internal reactive investigation.

Monitor the condition and performance of received goods and services, as appropriate, as per section 0 Planned monitoring.

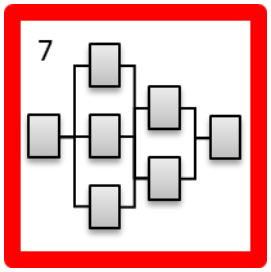
See also section C.5.2.1 Receipt.

C.6.4. Performance evaluation

∞ The organisation shall:

a) Monitor suppliers as per defined controls – refer to sections C.6.1 Classification, vetting and control and C.6.3 Receipt,
b) Review supplier performance via performance data – refer to sections and 0 Planned monitoring,
c) Review and grade the overall performance of significant suppliers against defined criteria.
d) Feed performance assessments back to key suppliers – refer to section C.1.1 Foundation planning.
e) Update the supplier database with latest supplier performance data/grades.
f) Feed supplier performance into management review and action – refer to section C.12.1 Review scheduling.

C.7. Normal Structures and Processes



∞ The organisation shall formally define arrangements for controlling and guiding the management of internal and external structures and processes (including goods and services delivery) and cover:

C.7.1 Structure and process design
C.7.2 Process implementation
C.7.3 Structure and process cessation

The organisation shall ensure that structures, processes (including goods and services) is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Structures and processes should be appropriately classified as per section C.1.6.1 Prospect and risk assessment planning and appropriate design and implementation management control applied.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.7.1. Structure and process design and development

∞ The organisation and projects shall:

a) Define their principal structures and processes (including goods and services) and their interactions as per section C.1.1 Foundation planning and assign responsibilities as per section C.2.2 Responsibilities and authorities.
b) Define the requirements for structures and processes,
c) Ensure structures and processes discourage and resist corruption and fraud – refer to section C.1.3 Policy statement.

Processes shall cover plan, do, check and act activities and the requirements of the following sections shall be taken into account in designing strategic, tactical and operational structures and processes:

- C.1 Prospect and risk assessment
- 0 Personnel
- 0 Commerce
- 0 Data
- 0 Matter and Energy
- 0 Suppliers

Structure and process design and development processes shall be managed as projects – refer to section C.7.1.5 Projects.

Design change shall comply with section 0 Change.

C.7.1.1. Structure and process definition

∞ The designated responsible persons shall establish and maintain structure and process (including goods and services) definitions and manage their improvement and where necessary change them according to section C.9.4 Structure and process change.

Structure and process definitions shall be communicated to relevant stakeholders, as applicable, as per section C.2.5.2 Communication, consultation, participation and reporting and as required by contracts – refer to section C.3.3 Contracts.

Structure and process definitions shall take account of the complexity and potential of structures and processes to impact stakeholder needs and expectations and be defined in sufficient detail to permit their effective and efficient analysis, implementation, control, monitoring, review and improvement and include or address for the significant life of the structure or process, as applicable:

a) Description of the purpose and the required goods and/or services quality to be delivered and goods and/or service capability – see also section C.3.2 Marketing,
b) Requirements specified by customer or other stakeholders plus any other known requirements related to the specified or intended purpose of the structure or process e.g. requirements for traceability, preservation, delivery and post-delivery, and goods and/or service capability – refer to sections C.3.3 Contracts, C.11.6 Survey and benchmarking.
c) A demonstration of how value is created with respect to objectives and stakeholder needs and expectations – refer to section C.1.7 Performance justification,
d) Design principles including their synergy and conflicts with respect to effectiveness, efficiency, innovation, robustness, agility, resilience, reliability, availability, operability and maintainability,
e) Modes of success and failure,
f) Permitted configuration(s),
g) Conventions – refer to section C.4.4 Conventions,
h) Requirements for traceability of structure and process materials and components – refer to section C.4.4 Conventions,
i) Controls to achieve care of stakeholder assets – refer to C.3.3 Contracts,
j) Controls to maintain conformity of process outputs during storage and/or delivery to the intended destination,
k) Principles and controls to provide resistance to malevolent theft of or degradation of the structure and/or process (structure and process security),
l) Life cycle of delivered good or service and life cycle of delivery system (structure) from inception to decommissioning and disposal,
m) Safe and healthy human and environmental interaction with structure and process (manufacture, construction, commissioning, operation, maintenance, decommissioning, demolition/destruction etc.),
n) A schedule of generic and specific rules governing decisions and transformations within the process including actions when specific conditions occur during processes,
o) Process inputs and outputs, and specific requirements,
p) Best use of resources including waste and emissions – refer to section C.5.6 Waste and emissions,
q) Selection and combination of materials and energy as per section C.5.1 Selection and combination,
r) Dependency and interdependency of interfacing structures (including substructures) and processes (including sub-processes),
s) Triggers that initiate transformation(s),

t) Process parameters, their measurement and permitted variation – refer to section C.5.4.3.2 Monitoring and measuring equipment,
u) Monitoring requirements and key performance indicators – refer to section C.5.4.3.2 Monitoring and measuring equipment,
v) Automatic process and manual process control aspects including ergonomics and need for personal equipment – refer to section A Personal equipment,
w) Relevant stakeholder needs and expectations, legislation and power to influence,
x) Verification and validation requirements,
y) Direct and indirect interaction with stakeholders including contracts,
z) Personnel requirements including numbers, competence and control of stressors,
aa) Analysis and measures taken to minimize human error and human violation,
bb) Involvement of other organisations in supplying significant goods and services – refer to section 0 Suppliers,
cc) The contribution and/or impact on the work environment – refer to section C.5.4.2 Work environment,
dd) Environment and structure(s) required to host or support the processes,
ee) Operability, maintainability, maintenance, inspections and test requirements,
ff) Minimum recommended planned monitoring requirements,
gg) Required goods and services release, delivery and post-delivery controls.

Structure and process definitions shall cover the delivery and post-delivery of goods and services – refer to section C.3.3.4 Post Contract.

Structures shall be designed to enhance the organisation's competitiveness and resist harm from stakeholder criminal or unethical behaviours.

Processes shall be designed to be conducted with sufficient transparency to provide the required stakeholder levels of confidence within covert requirements – refer to section A.4 Covert management arrangements.

Structure and process definitions shall be subject to appropriate review by relevant stakeholders and expert advisers and approved by the structure and/or process owners– refer to sections C.1.1 Foundation planning, C.2.3 Provision of expert advice and assistance and C.2.2 Responsibilities and authorities. Structure and process definitions shall be periodically reviewed as per section 0 Review scheduling.

Structure and process definitions shall be documented in a form to enable its effective and efficient implementation, review and modification – refer to sections C.7.2 Structure and process implementation, 0 Review and Action and 0 Change.

C.7.1.2. Repetitive and frequently conducted processes

∞ Where appropriate, repetitive and frequently conducted processes shall employ statistical process control – refer to sections C.7.1.7 Measurement and C.4.3 Processing.

Relevant process performance data shall be collected for lagging and leading indicators – refer to section C.4.3.2 Indicators.

C.7.1.3. Non-repetitive and infrequently conducted processes

∞ As applicable, non-repetitive and infrequently conducted processes shall be conducted according to a documented procedure or instruction – refer to section C.4.1 Management system structure.

Relevant process element performance data shall be collected, as practicable, for lagging and leading indicators – refer to sections C.4.3.2 Indicators.

Contingency processes shall be managed as per section 0 Contingencies.

C.7.1.4. Significant prospect and risk systems of work

∞ The organisation shall:

a) Identify significant prospects and risks requiring special work controls as per section C.1 Assessment and Development of Controls.
b) Maintain formal 'systems of work' for significant infrastructure, work environment and other relevant prospects and risks and document in work or project documentation.
c) Implement systems of work taking account of whether the organisation controls the work site/infrastructure or the organisation is working under a client or another contractor systems of work.
d) Maintain records of systems of work administrative documentation demonstrating the implementation of control of processes and its status and maintain as per section C.4.2.9 Records. See also section C.5.4.4 Configuration.

C.7.1.5. Projects

∞ The organisation shall ensure, as relevant, that project management includes:

a) Clear project purpose definition and defining of the organisation's role in the project,
b) Client and other stakeholder requirements,
c) Assessment and development of management control compliant with section C.1 Assessment and Development of Controls,
d) A project organisation under the control of an appointed project manager compliant with section 0 Personnel,
e) Commercial requirements and management compliant with section 0 Commerce,
f) Data availability, input, output and security requirements at each project stage and management compliant with section 0 Data,
g) Matter and energy requirements and management compliant with the section 0 Matter and Energy,
h) Supplier and subcontractor requirements and management compliant with section 0 Suppliers,
i) Project implementation compliant with section **Error! Reference source not found.** Normal Structures and Processes,
j) Contingency arrangements compliant with section 0 Contingencies and subsection C.8.2.6 Project contingency arrangements,
k) Change management compliant with section 0 Change,
l) Reactive investigation compliant with section 0 Reactive investigation – Events,
m) Planned monitoring (including suppliers) compliant with section 0 Planned monitoring,
n) Review and action compliant with section 0 Review and Action.

Organisations participating in or supplying goods and services to projects shall also satisfy these requirements, as applicable – refer to section 0 Suppliers.

C.7.1.6. Goods and services design and development

∞ Goods and services design and development shall be managed as a project as per section C.7.1.5 Projects.

Goods and services design processes shall comply with section C.7.1 Structure and process design.

The stakeholder requirements for the good and services shall be specified prior to the commencement of the design process including conventions – refer to section C.4.4 Conventions. Changes shall comply with section C.9.5 Project change.

The principal design methodologies shall be specified and their validation demonstrated – refer to section C.1.8 Management tools and techniques. Design input data shall be verified and validated as appropriate to the design methodology for which it is being used.

The design and development process shall include appropriate continual prospect and risk assessment covering the good and/or services lifecycle as per section C.1.6 Prospect and risk assessment and address the impacts of the design with respect to:

a) The organisation's strategy and policy – refer to sections C.1.2 Strategic plan and C.1.3 Policy statement.
b) Commercial contracts – refer to section C.3.3 Contracts.
c) Customer quality.
d) Personnel health and safety.
e) The environment.
f) Goods operability and maintainability.

Goods and services designs shall be validated against customer and other stakeholder requirements.

Operation manuals and maintenance manuals or similar documents shall be created or updated and verified.

Records shall be retained as per section C.4.2.9 Records.

C.7.1.7. Measurement and testing

∞ Measuring and test equipment shall be verified and/or calibrated as per section C.5.5.3 Calibration.

Measurement and testing methodologies, where required, shall be validated and justified as per section C.1.7 Performance justification.

Where required, measurement and test data shall be processed as per section C.4.3 Processing.

Measurement and testing shall comply with conventions established under section C.4.4 Conventions.

C.7.2. Structure and process implementation

∞ Structure and process definitions, defined in section C.7.1.1 Structure and process definition, shall be implemented taking account of the applicable MSS requirements and outputs of sections:

- C.1 Assessment and Development of Controls,
- 0 Personnel,
- 0 Commerce,
- 0 Data,

- 0 Matter and Energy,
- 0 Suppliers,
- 0 Contingencies,
- 0 Reactive investigation,
- 0 Planned monitoring,
- 0 Review and Action.

Structure and process owners shall ensure that:

a) Resources to achieve planned goods and services delivery are determined – refer to section C.3.3.3 Contract implementation,
b) Sufficient resources are made available to manage and conduct processes to satisfy stakeholder requirements within the limits of goods and/or services delivery capability ,
c) Responsibilities, authorities and requirements to achieve good and/or service quality have been defined and communicated as per sections C.2.2 Responsibilities and authorities and C.2.5.2 Communication, consultation, participation and reporting,
d) Required data is controlled and available where it is required – refer to section C.4.2 Control,
e) Processes are compliant with their process definition as per section C.7.1.1 Structure and process definition,
f) Goods and services are not released to a customer until the planned conformity verification arrangements have been satisfactorily completed, unless otherwise approved by the organisation's responsible manager and, where applicable, by the customer or other relevant stakeholder(s).
g) Documented information shall indicate the person(s) authorizing release of goods and services for delivery to the customer.
h) Processes are suitably and sufficiently monitored as per section 0 Reactive investigation and 0 Planned monitoring. To ensure compliance and the generation of improvement suggestions implemented via change as per sections 0 Review and Action and 0 Change,
i) Records are generated to demonstrate compliance with the structure and process definition – refer to sections C.4.2.9 Records and C.7.1.1 Structure and process definition.

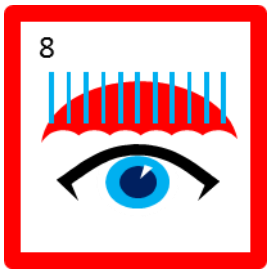
C.7.3. Structure and process cessation

∞ The cessation of structures and processes shall:

a) Be appropriately planned and implemented based on or informed by prospect and risk assessment taking account of customer and other stakeholder needs and expectations, and the structure and process definition(s) – refer to sections C.1 Assessment and Development of Controls and C.7.1.5 Structure and process definition,
b) Take account of the commercial impacts on customers, suppliers and other commercial participants [S],
c) Take account of the social impacts [G],
d) Make the best use of resources including their reuse, redeployment and minimization of waste,
e) Managed as a project, as appropriate – refer to section C.7.1.5 Projects,
f) Ensure that waste is managed as per section C.5.6 Waste and emissions.

Structures and processes requiring unscheduled cessation due to defects or other reasons shall be managed as per section 0 Contingency Structures and Processes.

C.8. Contingency Structures and Processes



∞ The organisation shall formally define arrangements for controlling and guiding the management of contingency processes covering:

- C.8.1 Contingency planning
- C.8.2 Organisation contingency arrangements
- C.8.2.6 Project contingency arrangements
- C.8.3 Contingency arrangements testing
- C.8.4 Contingency arrangements training
- C.8.5 Contingency events.

The organisation shall ensure that contingency management is compliant with its policy, strategic plan, objectives and legislation and take account of the needs and expectations of stakeholders who may be impacted by or may be required to participate in the arrangements – refer to sections C.1 Assessment and Development of Controls.

Contingency structures and processes shall comply with the relevant requirements of section **Error! Reference source not found.** Normal Structures and Processes.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

The arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.8.1. Contingency planning

∞ The organisation shall identify its needs for formal contingency arrangements based on the processes required by section C.1 Assessment and Development of Controls, to mitigate risks following or during an event and maintain continuity of its functionality and availability to deliver its purpose.

The organisation shall:

a) Identify the need for general and project contingency arrangements capable of mitigating potential losses following an undesired event based on applicable legislation and prospect and risk assessments covered in sections C.1.5 Legislation and standards and C.1.6 Prospect and risk assessment.

b) Develop contingency management arrangements, as applicable, covering:
   - Emergencies including first aid,
   - Crises, [S]
   - Disaster recovery, [S]
   - Processes intentionally halted by personnel because of perceived problems – see also C.2.2 Responsibilities and authorities,
   - Breach of security,
   - Goods and services defect notification and goods recall,

c) Ensure that contingency plans consider, as applicable:
   - Responsibility for command and control,

- Establishing a safe or stable situation,
- Internal and external communication,
- Contingency specific resources and the minimum required to operate contingency processes – refer to **Error! Reference source not found.** Organisation ,
- Recovery to normal conditions and processes,
- Preservation of evidence,
- Stakeholder specific requirements including legal compliance.

C.8.2. Contingency arrangements implementation

∞ The organisation shall:

a) Implement planned contingency arrangements.

b) Maintain sufficient resources to implement contingency arrangements with respect to:
   - Number of competent personnel – refer to section 0 Personnel,
   - Commercial contracts – refer to section 0 Commerce,
   - Data – refer to section 0 Data,
   - Matter and energy – refer to section 0 Matter and Energy,
   - Suppliers – refer to section 0 Suppliers.

C.8.2.1. Nonconformities

∞ Identified nonconforming structure shall be:

a) Identified and systematically recorded and include a description of the nature of nonconformities and any subsequent actions taken, including concessions obtained, and determining if similar nonconformities exist, or could potentially occur – refer to sections 0 Reactive investigation – Events, 0 Planned Monitoring and C.4.2.9 Records,
b) Marked as nonconforming, segregate and/or secured from conforming structure, as appropriate to the significance of the nonconformity and its effective and efficient control and to minimize the impact on the normal functioning of structures and processes,
c) Subjected to prospect and risk analysis, corrective action and preventive action, as appropriate to the significance of the nonconformity – refer to sections C.1.6 Prospect and risk assessment C.9.2 Corrective and preventive action,
d) Subjected to re-verification if corrected to demonstrate conformity to the requirements.

C.8.2.2. Emergencies, Crises and Disaster Recovery

∞ The organisation shall maintain appropriate emergency, crisis and disaster recovery preparedness and response plans based on or informed by prospect and risk assessments and relevant stakeholder requirements. The preparedness and response structures and processes shall endeavour to mitigate risk and attempt to restore normal processes whilst addressing the organisation's and its stakeholder's needs and expectations including those relating to safety, health and the environment.

Preparedness and response shall address:

a) Personnel structures and processes including internal and external coordination, cooperation and competence, and provision of expert advice – refer to sections 0 Personnel and C.8.4 Contingency arrangements training,
b) Commercial arrangements to ensure availability of resources – refer to section 0 Commerce,
c) Data requirements including instruction and guidance documents, control, processing, transmission and recovery – refer to section 0 Data,

d) Access to data requirements,
e) Matter and energy requirements including safeguarding and maintaining operation of essential structures and processes – refer to section 0 Matter and Energy,
f) Designated location(s) for the management and other key personnel,
g) Provision and operation of emergency, protective and measuring equipment C.5.4.3 Plant and equipment,
h) Coordination, cooperation and competence of suppliers goods and services – refer to sections 0 Suppliers, and C.3.3 Contracts,
i) Coordination, cooperation and interaction with significant stakeholders – refer to sections C.1.1 Foundation planning and C.2.5.1 Interactions,
j) Periodic testing as per section C.8.3 Contingency arrangements testing,
k) Review, continual improvement and alignment with stakeholder needs and expectations as per section 0 Review and Action.

C.8.2.3. Intentionally halted processes

∞ The organisation shall maintain formal arrangements:

a) Permitting personnel to halt processes when there are legitimate concerns about good or service quality, health, safety, environmental or security issues,
b) Resolving any disagreements or conflict and re-establishing normal or changed processes.

See also section C.2.5.3 Management of conflict.

C.8.2.4. Defect notification and recall

∞ The organisation shall maintain arrangements for notifying customers and relevant stakeholders, and where appropriate taking any necessary corrective action or compensatory actions following the internal or external revelation of:

a) A significantly defective good,
b) A delivered process that was defective.

See also section C.2.5.2.2 External communication, consultation, participation and reporting.

C.8.2.5. Insurance

∞ The organisation shall maintain insurance sufficient to mitigate significant risks, be compliant with legislation and to satisfy other stakeholder requirements.

C.8.2.6. Project contingency arrangements

∞ The organisation shall:

a) Implement formal contingency arrangements and plans appropriate to the significance of the project and its potential to impact on stakeholder needs and expectations,
b) Ensure that relevant parts of contingency arrangements are briefed to project personnel during induction and are accessible for reference – refer to section C.2.5.2 Communication, consultation, participation and reporting,
c) Identify project nonconforming structures and manage them according to section C.8.2.1 Nonconformity.

C.8.3. Contingency arrangements testing

∞ The organisation shall:

a) Test all contingency arrangements, as reasonably practical, to a degree sufficient to establish initial and on-going confidence in their effectiveness and efficiency.
b) Hold a post-testing meeting to review the performance of the arrangements.
c) Produce a report or record containing suggestions for improvement – refer to section 0 Change.

C.8.4. Contingency arrangements training

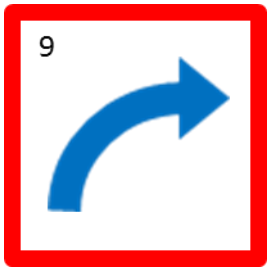
∞ The organisation shall provide contingency process training and periodic practice – refer to sections C.2.4.4 Competence and C.2.5.2 Communication, consultation, participation and reporting.

C.8.5. Event response

∞ The organisation shall, as relevant:

a) Follow formal arrangements when responding to events – refer to section C.4.1 Management system structure and C.8.2.2 Emergencies, Crises and Disaster Recovery,
b) Endeavour to safeguard life, the environment and assets,
c) Preserve evidence – refer to section C.10.1.1 Evidence preservation,
d) Notify relevant personnel and bodies without delay – refer to section C.2.5.2 Communication, consultation, participation and reporting.
e) Record event details – refer to section C.4.2.9 Records,
f) Analyse immediate and root causes as per section C.10.1.3 Investigation and analysis of root causes,
g) Create an event report(s) and where required circulate to regulatory bodies and other stakeholders as per section C.2.5.2.2 External communication, consultation, participation and reporting,
h) Schedule a timely management review depending on the seriousness of the event – refer to 0 Review scheduling,
i) Brief personnel on relevant internal and external events and the lessons to be learned – refer to section C.2.5.2.1 Internal communication, consultation, participation and reporting.

C.9. Change



∞ The organisation shall formally define arrangements for controlling and guiding the management of various forms of change covering:

C.9.1 Change management lifecycle
C.9.2 Corrective and preventive action
C.9.3 Strategic and tactical change
C.9.4 Operational structure and process change
C.9.5 Project change
C.9.6 Management system change.

The organisation shall ensure that:

a) The management of significant changes is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls,
b) Proposed change is appropriately classified and management control applied depending on the potential for gain and loss – refer to section C.1.6.1 Prospect and risk assessment planning,
c) That the management of change forms part of management review and action – refer to section 0 Review and Action,
d) Change processes are recorded – refer to section C.4.2.9 Records.

Structures and processes shall be validated as per section C.1.7 Performance justification, where required by stakeholders.

Some arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements.

C.9.1. Change management life cycle

∞ For all significant organisation and project temporary and permanent change the organisation shall:

a) Define the change lifecycle's key stages and the management control for managing all types of change from conception to completion,
b) Establish arrangements for responding to stakeholder change suggestions – see sections C.2.2 Responsibilities and authorities and C.11.7 Self-monitoring and vigilance,
c) Classify change proposals according to potential to impact performance – refer to section **Error! Reference source not found.** Prospect and risk assessment planning,
d) Not implement any significant change without it first receiving approval via management review at an appropriate level – refer to section 0 Review and Action,
e) Maintain databases and records demonstrating the status and progress of significant temporary and permanent changes – refer to sections C.4.2.1 Databases and C.4.2.9 Records,
f) Feed change progress and performance into the management review process – refer to section 0 Review and Action,
g) Consult with, as appropriate, and take account of stakeholder general and contractual requirements – refer to sections C.1.1 Foundation planning, C.2.5.2 Communication, consultation, participation and reporting and C.3.3 Contracts,
h) Monitor and review the effectiveness of changes to structures and processes – refer to sections C.11.1 Monitoring planning and 0 Review and Action.

C.9.2. Corrective and preventive action

∞ The organisation shall:

a) Report all significant conditions requiring corrective actions identified via reactive investigation or planned monitoring or management review as per sections C.2.5.2 Communication, consultation, participation and reporting, C.8.2.1 Nonconformities, 0 Reactive investigation – Events, 0 Planned monitoring. And 0 Review and Action,
b) Notify relevant stakeholders of significant nonconformities – refer to section C.2.5.2 Communication, consultation, participation and reporting,
c) Ensure that goods and services which do not conform to requirements are controlled to prevent their unintended use or delivery that will have a negative impact on customers or other stakeholders,
d) Correct nonconformities,
e) Investigate the immediate and root causes of a nonconformity or negative event, including relevant prospect and risk assessments and endeavour to avoid or reduce applicable risks – refer to C.1.6 Prospect and risk assessment,
f) Review the effectiveness of any corrective action taken,
g) Make changes to the management system, if necessary – refer to section C.9.6 Management system change.

C.9.3. Strategic and tactical change

∞ The top management of the organisation shall control strategic change informed by prospect and risk assessment as per section C.1.6 Prospect and risk assessment.

Strategic change arrangements shall cover change of the strategic plan and policy – refer to sections C.1.2 Strategic plan and C.1.3 Policy statement.

Tactical change shall comply with the organisation's strategic plan and the policy statement – refer to sections C.1.2 Strategic plan and C.1.3 Policy statement.

C.9.4. Operational structure and process change

∞ The organisation shall control operational structure and process (including goods and services) change informed by or based on prospect and risk assessment as per section C.1.6 Prospect and risk assessment.

Structure shall be suitably marked to indicate the change that has occurred – refer to section C.4.4 Conventions.

Data systems shall be updated so that they reflect the current condition, status and the change that has been implemented to ensure continuity and accuracy of explicit knowledge – refer to section C.4.2 Control.

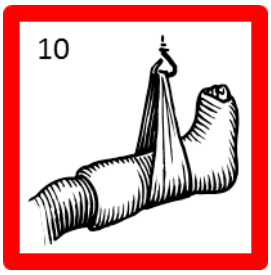
C.9.5. Project change

∞ Significant project changes shall be subject to management control that is prospect and risk based or prospect and risk informed, as appropriate, as per sections C.1.6 Prospect and risk assessment and C.9.1 Change management lifecycle.

C.9.6. Management system change

∞ The organisation shall establish arrangements for controlling permanent and temporary changes to its management system compliant with section 0 Data.

C.10. Reactive Investigation



∞ The organisation shall formally define arrangements for controlling and guiding the management of internal and external reactive investigation that may have negative and positive impacts and cover:

C.10.1 Internal reactive investigation
C.10.2 External reactive investigation

The organisation shall ensure that reactive investigation is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Reactive investigation shall, as applicable:

a) Cover commercially responsibility performance, [S]
b) Cover social responsibility performance, [G]
c) Contribute to the generation of indicators as per section C.4.3.2 Indicators.

Personnel involved in the reactive investigation of events shall consider opportunities to improve planned monitoring – refer to section 0 Monitoring planning.

Some of the arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements. Reactive investigation covert arrangements shall have an appropriate degree of separation from the planned monitoring of normal overt arrangements – refer to section C.2.2 Responsibilities and authorities.

Records of reactive investigation shall be retained as evidence meeting the organisation's requirements and the mandatory requirements of stakeholders – refer to section C.4.2.9 Records.

C.10.1. Internal reactive investigation

∞ The organisation shall formally define arrangements for controlling and guiding the management of internal reactive investigation and cover:

C.10.1.1 Evidence preservation
C.10.1.2 Evidence reporting
C.10.1.3 Investigation and analysis of root causes.

The organisation shall establish processes to:

a) Record the lifecycle of an event including the event, analysis and corrective action and/or preventive action,
b) Estimate financial losses associated with the event including rehabilitation where there has been absence from work – see section C.2.4.6 Work absence and rehabilitation.

Arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements. The reactive investigation of covert arrangements shall have an appropriate degree of separation from the Reactive investigation of normal overt arrangements – refer to section C.2.2 Responsibilities and authorities.

Retain records as per section C.4.2.9 Records.

C.10.1.1. Evidence preservation

∞ The organisation shall ensure that all personnel are aware, that having taken measures to safeguard life, environment and assets, it is important to preserve site and communication event evidence – refer to sections C.2.2 Responsibilities and authorities, C.2.4.2 Induction and C.8.5 Event response.

C.10.1.2. Evidence reporting

∞ The event shall be recorded on the designated form or other instrument.

Identified environmental undesired events shall be reported immediately by telephoning the undesired event hotline of the relevant government environmental agency.

The event shall be classified according to:

a) Impact or potential impact on personnel health, safety or welfare, the environment, commerce, good/service quality, reputation and infrastructure,
b) Risk classification of associated structures and processes as per section **Error! Reference source not found.** Prospect and risk assessment planning,
c) Actual loss or potential loss and financial estimate,
d) Stakeholder required classifications.

The organisation shall ensure that all personnel are aware that they must only communicate event information to the organisation's line managers, relevant customers, official bodies and the emergency services. Unauthorised personnel shall not speak to the media – refer to section C.2.5.2.2 External communication, consultation, participation and reporting.

Confidentiality shall be maintained as per sections C.2.5.2 Communication, consultation, participation and reporting and C.4.2.10 Access.

The organisation shall submit reports to external bodies and customers as required by legislation and contracts – refer to section C.2.5.2.2 External communication, consultation, participation and reporting.

C.10.1.3. Investigation and analysis of root causes

∞ The organisation shall appoint a competent person with suitable authority to conduct the investigation and analysis of an event – refer to sections C.2.4.4 Competence and C.2.2 Responsibilities and authorities. The competent person shall seek and engage expert advice necessary to complete an appropriate investigation of the event and any implications related to other structures and processes – refer to section C.2.3 Provision of expert advice and assistance.

The event shall be classified according to its potential to significantly impact facets of the organisation's performance according to section C.10.1.3.1 Event classification.

For significant events such as accidents involving loss of life, major injury, major pollution, major customer complaint etc., the organisation shall appoint a competent person to head and coordinate a formal investigation and define its formal terms of reference – refer to section C.2.4.4 Competence.

Personnel involved in the event shall be interviewed as necessary and evidence collated and verified as practicable. The immediate causes of the event shall be determined and required supplementary

actions shall be taken to meet stakeholder legitimate needs. Communication with stakeholders and the media shall be conducted as per section C.2.5.2 Communication, consultation, participation and reporting.

The root causes of the event shall be determined and recorded as per section C.10.1.3.2 Root cause classification.

Where appropriate corrective action and/or preventive action shall be proposed and approved by the structure and process owners.

The analysis report(s) for major events shall be independently peer reviewed by a specialist(s) appropriate to the nature of the event – refer to C.2.3 Provision of expert advice and assistance.

If the event involves human violations of the organisation's management system or applicable legislation the organisation shall carry out further investigation and initiate disciplinary processes, as applicable – refer to section C.2.4.8 Discipline.

The event report(s) shall be fed into management review as per section 0 Review and Action, and corrective action and/or preventive action implemented as per section C.9.2 Corrective and preventive action.

An internal audit of the structures and processes associated with the event shall be performed with an appropriate scope when the circumstances indicate that this will add significant value – refer to section C.11.2 Internal audit.

C.10.1.3.1. Event classification

∞ The organisation shall define event classification definitions for internal events according to their potential to significantly impact facets of the organisation's performance.

Events shall be classified after initial reporting and as necessary reclassified during the processing of the event investigation according to:

a) Internal event classification definitions,
b) External event classification definitions where required by external stakeholders – refer to section C.2.5.2.2 External communication, consultation, participation and reporting.

C.10.1.3.2. Root cause classification

∞ The organisation shall define root cause classification definitions aligning with the structures of this MSS to facilitate corrective action and preventive action – refer to section C.9.2 Corrective and preventive action.

Root causes shall be identified and recorded according to the root cause classification system.

C.10.2. External reactive investigation

∞ The organisation shall investigate supplier, customer and other stakeholder events which have the potential to impact the organisation – refer section C.10.1 Internal reactive investigation.

An external audit (second party) of the structures and processes associated with the event shall be performed with an appropriate scope when the circumstances indicate that this will add significant value and is practicable – refer to section C.11.3 External audit. See also 0 Suppliers.

The organisation shall survey and collect event and performance data relating to its external commercial environment to support marketing as per section C.3.2 Marketing and to support continual improvement via management review as per sections 0 Review and Action and 0 and Change.

Retain records as per section C.4.2.9 Records.

C.11. Planned Monitoring

∞ The organisation shall formally define arrangements for controlling and guiding the management of planned monitoring and cover:

0 Monitoring planning
C.11.2 Internal audit
C.11.3 External audit
C.11.4 Independent audit
C.11.5 Inspection
C.11.6 Survey and benchmarking
C.11.7 Self-monitoring and vigilance

The organisation shall ensure that planned monitoring is compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.

Planned monitoring shall be vigilant for events and where revealed during the planned monitoring process ensure that they are reported and subjected to reactive investigation processes as per section C.10.1 Internal reactive investigation.

Planned monitoring shall, as appropriate, contribute to the generation of indicators as per section C.4.3.2 Indicators.

Some of the arrangements may be covert, as necessary as well as monitoring being scheduled and/or conducted covertly – refer to section A.4 Covert management arrangements. The planned monitoring of covert arrangements shall have an appropriate degree of separation from the planned monitoring of normal overt arrangements – refer to section C.2.2 Responsibilities and authorities.

Records of planned monitoring shall be retained as evidence – refer to section C.4.2.9 Records.

C.11.1. Monitoring planning

∞ The organisation shall define criteria or a program for determining what type and when planned monitoring is to be performed. Planned monitoring shall make appropriate use of measurement, data processing and – refer to sections C.1.8 Management tools and techniques, C.4.3 Processing and C.7.1.7 Measurement and testing.

Planned monitoring shall cover the operation of the organisation and projects with a suitable degree of frequency and scope. This shall be sufficient to provide confidence that the requirements of the management system across its scope of application and the functionality of the organisation is effective and efficient and that any institutional decline is detected to facilitate corrective action as per section C.9.2 Corrective and preventive action.

Planned monitoring shall ensure that prospect and risk controls have been implemented to achieve prospect and/or risk improvement and are effective – refer to section C.1.6.5 Prospect and risk improvement.

Additional planned monitoring shall be conducted, as necessary, following events as per section 0 Reactive investigation – Events or if there are other concerns relating to performance as per section 0 Review and Action

Each type of monitoring shall:

a) Monitor the effectiveness and efficiency of subordinate monitoring types unless it is atomic,
b) Employ monitoring teams and individuals that are competent with respect to leading the team, performing the type of monitoring and possession of knowledge of the structures and the processes being monitored – refer to as per section C.2.4.4 Competence,
c) Only engage competent monitoring personnel from outside of the organisation from an approved supplier as per section 0 Suppliers,
d) As applicable, score compliance as per section A.5.1 Compliance scoring system.

Planned monitoring shall cover:

e) Progress and completion of the organisation's objectives – refer to section C.1.4 Objectives.
f) Structures and processes with associated tolerable risks to ensure the risks have not become or are approaching being unacceptable risk,
g) Structures and processes with associated broadly acceptable risks to ensure that the risks have not become or are approaching being unacceptable risk requiring risk control review and action.
d) Recently changed structures and processes – refer to section C.9.1 Change management lifecycle,
e) Commercially responsibility performance, [S]
f) Social responsibility performance, [G]

Planned monitoring shall take account of previous reactive investigation and planned monitoring experience and the prospect and risk controls monitoring requirements identified according to section C.1.6.5 Prospect and risk improvement.

If the organisation manages low frequency high impact risks, where direct reactive performance data is inevitably limited or not available, it shall monitor the indirect aspects and prospect and risk controls that contribute to the overall performance – refer to section C.1.6.5 Prospect and risk improvement.

C.11.2. Internal audit

∞ The organisation shall define its internal audit arrangements and maintain an internal audit schedule structured to ensure that:

a) The management system complies with this standard, including sections B General Requirements and C Specific Requirements,
b) The management system complies with other adopted standards,
c) The management system complies with new or changed legislation since the last internal audit,
d) The organisation's formal management system has been implemented, is being complied with and appears to be effective, efficient and prospect and/or risk based or prospect and/or risk informed, where practicable.

The organisation shall be internally audited at least annually according to the scope defined by its audit schedule unless otherwise justified and shall be compliant with mandatory stakeholder requirements.

The internal audit schedule shall take account of the organisation's policy, strategic plan, objectives, structure and process risks, reactive investigation experience and planned monitoring experience.

The organisation shall agree and approve the internal audit schedule as part of the management review process defined in section 0 Review and Action.

Additional internal audit shall be conducted, as necessary, following investigated events or if there are other concerns relating to performance – refer to sections 0 Reactive investigation and 0 Review and Action.

internal audits shall:

e) Have a defined scope,
f) Be planned to ensure their effective and efficient execution,
g) Be conducted objectively and impartially by competent Internal Auditors – see section C.2.4.4 Competence,
h) Employ auditors which do not participate in or are managerially responsible for the structures and processes included in the scope of the audit,
i) Identify and agree nonconformities, corrective actions and observations for improvement, as applicable,
j) Be formally reported and the report circulated to responsible managers.

Corrective actions and adopted observations shall be implemented as per section C.9.2 Corrective and preventive action in a timely manner and audit findings monitored until closed out under the direction of the responsible manager.

Retain records as per section C.4.2.9 Records.

C.11.3. External audit

∞ Identify suppliers that require auditing as per section C.6.1 Classification and vetting.

A supplier audit schedule shall be maintained that identifies the scope and periodicity of the audit for each supplier, as appropriate.

Conduct additional external audits (second party), as necessary, following events as per section 0 Reactive investigation – Events or if there are other concerns relating to performance – refer to 0 Review and Action.

The organisation shall consider the need for additional supplier audits following reported and analysed events covered in section C.10.1.3 Investigation and analysis of root causes or other concerns relating to supplier's performance covered in section C.6.4 Performance evaluation .

Appoint competent external auditors to conduct external audits (second party) of suppliers – see section C.2.4.4 Competence.

External auditors shall prepare supplier audit reports and identify and agree nonconformities and corrective actions and make observations for improvement, as applicable.

Close out of supplier audit findings shall be monitored and completion confirmed.

Retain records as per section C.4.2.9 Records.

C.11.4. Independent audit and surveillance

∞ The management system representative of the organisation being audited shall identify the scope of the independent audits (third party) being managed by independent bodies or clients and agree suitable audit or surveillance dates.

The management system representative shall arrange for staff to be available and coordinate them to meet the auditor's needs, make a private room available, as appropriate, and make provision for their welfare while on the organisation's premises.

All personnel shall cooperate and participate positively in the audit or any other types of surveillance conducted by an external body and ensure that data is protected as per section C.4.2.10 Access.

The management system representative and other responsible managers shall attend the audit or other closing meeting and as far as possible agree corrective actions.

If not supplied by the auditing body, the management system representative shall record corrective actions and observations for improvement and distribute the audit report to relevant staff, as applicable.

Responsible managers shall implement agreed corrective actions and adopted observations recorded by auditees as per section C.9.2 Corrective and preventive action in a timely manner and report completion to the management system representative.

Retain records as per section C.4.2.9 Records.

C.11.5. Inspection

∞ The organisation shall identify significant prospect and risk controls requiring periodic inspection within the organisation's and projects' structures and processes as per section C.1.6.5 Prospect and risk improvement.

Conduct random unannounced inspections to provide additional confidence required by stakeholders, as applicable and ensure the conduct aligns with its policy statement – refer to section C.1.3 Policy statement.

Conduct additional inspections, as necessary, following events as per section 0 Reactive investigation – Events or if there are other concerns relating to performance – refer to 0 Review and Action.

The organisation's material assets shall be inspected as per section C.5.5 Maintenance, inspection and testing.

The organisation shall maintain forms or other instruments for guiding and recording inspections results.

Ensure that inspections are conducted using competent staff as per section C.2.4.4 Competence.

Record findings and where possible immediately agree and close out findings. Where issues cannot be readily closed out, formally record them as nonconformities and managed them as per section C.9.2 Corrective and preventive action.

Where required, inspection data shall be processed as per section C.4.3 Processing.

Retain records as per section C.4.2.9 Records.

C.11.6. Survey and benchmarking

∞ The organisation shall maintain suitable arrangements to record customer and other stakeholder satisfaction.

Customer and significant stakeholder satisfaction surveys shall be conducted according to defined arrangements and data gathered on the perceived quality of the organisation's goods and/or services.

The data shall be analysed as per section C.4.3 Processing, to redefine or refine the organisation's goods and/or services quality specification. Refer to section C.7.1.1 Structure and process definition.

Reasons shall be recorded when the conduct of a customer survey has not been possible. Refer to section C.4.3.2 Indicators regarding events involving a customer complaint.

The organisation shall conduct additional surveys covering:

a) Critical topics identified during management review conducted as per section 0 Review and Action,
b) Benchmarking of one part of an organisation's functionality with another part of the organisation, [S] [≠µ]
c) Benchmarking of the organisation's functionality with another organisation(s), [G]
d) Organisation morale, [S] [≠µ]
e) Organisation culture. [S]

Survey data, as appropriate, shall be included in indicator data as per section C.4.3.2 Indicators.

Retain records as per section C.4.2.9 Records.

C.11.7. Self-monitoring and vigilance

∞ The organisation shall ensure that all personnel are aware that processes are to be conducted in compliance with the management system and customer and other stakeholder requirements as per section B.3 Stakeholder specific requirements and that they must be constantly self-monitoring and vigilant – refer to sections C.2.2 Responsibilities and authorities.

All personnel shall self-monitor and be vigilant with respect to:

a) Personnel to ensure their health, safety, welfare and correct behaviour,
b) Constantly observing structures and processes to ensure their integrity, safety, security, correct functionality,
c) Significant threats to personnel, physical assets, the environment or good/service quality requiring processes to be immediately halted,

d) Potential or breached security requiring urgent action.
e) Compliance with the management system and human error and human violation,
f) Sensed or observed customer or other stakeholder dissatisfaction,
g) Errors observed in records – refer to section C.4.2.9 Records,
h) Identifying opportunities for improvement – refer to section 0 Change.

Following self-monitoring and vigilance, personnel shall take necessary prompt corrective action and preventive action directly or through their line manager as per section C.9.2 Corrective and preventive action .

Where required, emergency and crisis response processes shall be immediately initiated as per section C.8.5 Contingency events.

Significant observed events shall be recorded and analysed as per section 0 Reactive investigation – Events.

Retain records as per section C.4.2.9 Records.

C.12. Review and Action

∞ The organisation shall formally define arrangements for controlling and guiding the management of review and action and cover:

0 Review scheduling
C.12.2 Review
C.12.3 Review output and action
C.12.4 Action realization.

The organisation shall:

a) Ensure that management review and action planning are compliant with its policy, strategic plan, objectives and legislation – refer to sections C.1 Assessment and Development of Controls.
b) Endeavour to ensure by structured and systematic review that all elements of its structures and processes deliver value continuously, continually or potentially via contingency arrangements, as applicable, and stay aligned with stakeholder needs and expectations.
c) Remove redundant non-value adding structures and processes where this is commercially viable.
d) Ensure that action planning is implemented in compliance with section 0 Change.

Some arrangements may be covert, as necessary – refer to section A.4 Covert management arrangements. The review covert arrangements shall have an appropriate degree of separation from the planned monitoring of normal overt arrangements – refer to section C.2.2 Responsibilities and authorities.

Retain review and action records as evidence as per section C.4.2.9 Records.

C.12.1. Review scheduling

∞ The organisation shall establish and maintain a schedule of the organisation's controlled documents and other relevant data such as legislation and standards that require periodic review. The review shall also include the functionality of the management system as a whole.

Timely periodic reviews shall be scheduled and performed by a designated competent person. The periodicity or other defined requirement triggering reviews shall be defined and take account of, as relevant:

a) Stakeholder requirements including legislation – refer to section C.1.5 Legislation and standards,
b) The organisation's vision, strategic plan, policy statement, prospect and risk assessments and structure and process justifications – refer to section C.1 Assessment and Development of Controls,
c) Personnel appraisals and individual and group development, training and other needs such as staffing levels – refer to section C.2.4.4 Competence,
d) Commercial performance, prospects and needs – refer to section 0 Commerce,
e) Commercially responsibility performance, [S]
f) Social responsibility performance, [G]
g) Data performance, prospects, needs and access rights – refer to section 0 Data,

h) Matter and energy performance, usage, prospects and needs – refer to section 0 Matter and Energy,
i) Supplier performance, usage and needs – refer to section 0 Suppliers,
j) Normal structures and normal processes performance, goods and services delivery capability, prospects and needs – refer to section 0 Normal Structures and Processes,
k) Contingency structures and processes, performance, prospects and needs – refer to section 0 Contingency Structures and Processes,
l) Recently implemented and active change programs – refer to section 0 Change,
m) Recent internal and external events including nonconformities, emergencies, crises, disaster recoveries, intentionally halted processes, insurance claims, project events, testing and training and event response performance – refer to section 0 Reactive investigation – Events,
n) Planned monitoring performance, findings and needs – refer to section 0 Planned monitoring.

A hierarchical structure of management meetings shall be defined for the organisation and its projects headed by a main management review meeting that shall be conducted at least annually. The arrangements shall define:

o) Attendees and the chairperson,
p) The periodicity or the circumstances that will initiate the meeting,
q) Terms of reference including purpose, responsibilities and authorities, and essential agenda topics – refer to section C.2.2 Responsibilities and authorities,
r) How the types of meeting interact including accountability and required reporting.

Chairpersons shall ensure that an appropriate amount of time is allocated for the review meetings and each aspect of the agenda.

C.12.2. Review

∞ Managers shall prepare reports on the performance of elements of the organisation for which they are responsible prior to management meetings. They shall be suitable and sufficient to support the meeting agenda and allow attendees to read the reports in advance of the meeting. Reports shall comply with the requirements of section C.4.2.10 Access – see also section A.4 Covert management arrangements.

The main management review shall cover the following issues, associated performance and required actions either directly or by confirmation of the satisfactory output of a subordinate meeting:

a) Planned monitoring including audit, survey and inspection results,
b) Reactive investigation including accidents, undesired and desired events, complaints and other stakeholder feedback (positive or negative) resulting from the organisation's operations,
c) Internal and external stakeholder interactions, needs and expectations,
d) Compliance with current and planned legislation and other stakeholder requirements,
e) Significant new and changed aspects, hazards, risks and their control – refer to Appendix 6: General Aspects of an Organisation,
f) Newly available internal or external technological innovation,
g) Suppliers,
h) Commercial performance including finance, sales, marketing and future prospects,
i) Commercially responsibility performance, [S]
j) Social responsibility performance, [G]
k) Use of management tools and techniques,

l) Goods and services delivery and project management performance,
m) Internal projects and change initiatives,
n) Human resource, competence and training performance and future requirements,
o) Management system,
p) Organisation vision and strategy,
q) General organisation performance and achievement of previously defined organisation objectives and action plan,
r) Approval of year end accounts and reports prior to submission to external bodies,
s) Setting or revision of objectives, action plan, financial budget and resource planning.

The review of each issue shall include the review of relevant key performance indicators derived as per section C.4.3.2 Indicators. Where key performance indicators trends or other information indicate changes in performance they shall be adequately explained. The management review shall include a conclusion as to the overall functionality of the organisation and whether it is satisfactory with respect to all facets of organizational performance and whether each facet of performance is judged to be steady, improving or declining. The review shall consider opportunities to improve and where appropriate support them.

Where practicable decisions shall be:

- Based on a process of due diligence,
- 'Evidence based' or 'evidence informed',
- 'Prospect and risk based' or 'prospect and risk informed'.

The basis for decisions shall be recorded – refer to section C.4.2.9 Records.

C.12.3. Review output and action

∞ Meeting minutes shall be recorded and circulated to appropriate parties. Minutes shall comply with the requirements of section C.4.2.10 Access – see also section A.4 Covert management arrangements.

As applicable, action plans shall be agreed, defined and prioritized.

Minutes and action plans shall record 'what, how, where, who, when and why', as applicable.

C.12.4. Action realization

∞ The organisation shall establish and implement arrangements for tracking the progress of management action realization, including the delegation of actions into sub actions, such that the current status of actions is transparent.

Responsible managers shall progress their actions according to their prioritization and record and report the progress of their implementation including delegation where applicable.

Actions involving significant change shall be managed as per section 0 Change.

D.General Requirements Guidance

This MSS main section covers the general generic requirements of the management system and general compliance issues regarding the twelve elements of this MSS contained in section C Specific Requirements.

It also includes general background information to assist with the implementation of the topic. This cannot be exhaustive or universal because of the diversity of individual organisations but the information will hopefully stimulate the organisation to seek further information through its own research making use of expert advice as necessary – refer to section E.2.3 Provision of expert advice and assistance.

D.1. Scope of organisation's arrangements

< An unrestricted scope will include the following facets of performance:

- Good and service quality management,
- Prospect and risk management,
- Personnel health and safety and welfare management,
- Environmental protection and nurture management,
- Infrastructure management,
- Commercial management,
- Project management,
- Data management etc.

However, organisations may initially wish to restrict the scope of application of this MSS leaving the option to expand the scope at a later date e.g. it could be restricted to good and service quality supplied to external customers or it could be restricted to a part of the organisation's operations.

D.2. Coherent functionality

< The MSS requires that structures and processes are managed as a whole and not in isolation of each other. This means that management activity must be coordinated and staff must cooperate in achieving the overall objectives of the organisation. Synergistic benefits result from this approach where the whole becomes more than the sum of the parts.

It should be noted that structures and processes have the potential to impact all facets of organisation performance e.g. commercial, goods and services quality, health and safety and environment etc. Also attempting to control one facet of performance in isolation may negatively impact other facets. It is therefore necessary to focus on all these aspects of performance simultaneously and apply creativity to achieve optimal low risk solutions that equitably satisfy the stakeholders' needs and expectations making the best use of resources. This is achieved by operating Plan-Do-Check-Act management cycles throughout the organisation at all levels that are harmoniously vertically and horizontally integrated – refer to Figure 3: Universal Plan-Do-Check-Act throughout an organisation. Plan-do-check- act may be applied throughout the organisation because conceptually it has a fractal nature.

The general management principles forming the foundation of this MSS are contained in section A.6 Management Principles.

D.3. Stakeholder specific requirements

< An organisation should as far as possible define generic management arrangements applicable to all of its operations. However, circumstances may arise where a stakeholder requires the organisation to work to their own particular requirements. This should be accommodated through additional formal arrangements that add to or vary the organisations generic management arrangements. This has the advantage of allowing the generic arrangements to control the organisation's normal generic processes in an optimal way and only vary them when delivering a good or service applicable to a specific stakeholder. The separate arrangements also make it clear to personnel exactly what must be done differently to normal to meet the stakeholder's specific requirements.

D.4. Application of the MSS

< In principle, this MSS can be applied to any part of an organisation irrespective of scale because of the fractal nature of an organisation e.g. a multinational organisation or just a section of it. See also D.1 Scope of organisation's arrangements.

The organisation should not apply the MSS requirements automatically without judging how the requirement can best be applied to optimally add value to the functionality of the organisation. Some of the requirements of the MSS are not universally applicable to all organisations or to the same degree. This will be particularly true for small or micro organisations. The organisation should justify requirements that have not been applied or only partially applied to provide a compliance transparency record and to facilitate management system review as required under section 0 Review and Action. Expert advice should be sought as necessary – refer to section E.2.3 Provision of expert advice and assistance.

It should be noted that all of the organisations structures and processes potentially impact all facets of its performance such as health, safety, environment, quality, commerce and any other aspects and none of them should be managed in isolation. Each requirement of this MSS is potentially applicable to all facets of performance – refer to Appendix 6: General Aspects of an Organisation.

Expanding organisations and those planned to grow should note section E.4.1 Management system structure.

E. Specific Requirements Guidance

This MSS main section contains twelve hierarchical subsections corresponding to section C Specific Requirements. The overall relationship and philosophy of the twelve elements is described in section A.1.3 Universal PDCA Twelve Element Structure.

E.1. Assessment and Development of Controls

< Assessment and development of controls comprises requirements for management analysis and synthesis processes to ensure that the organisation's structures and processes are fit for purpose and minimize the potential to harm people, the environment and other assets important to stakeholders.

Identified relevant legislation and adopted standards requirements and the developed prospect and risk controls perform a foundation for the next eight sections of the MSS:

0 Personnel,
0 Commerce,
0 Data,
0 Matter and Energy,
0 Suppliers,
0 Normal Structures and Processes,
E.7.2 Contingencies,
0 Change.

Planning is a critical activity that is essential to success, but it can be a very complex process depending on the nature of the organisation or project and needs to be performed appropriately. It may involve the application of many management tools and techniques such as prospect and risk assessment – refer to section E.1.8 Management tools and techniques.

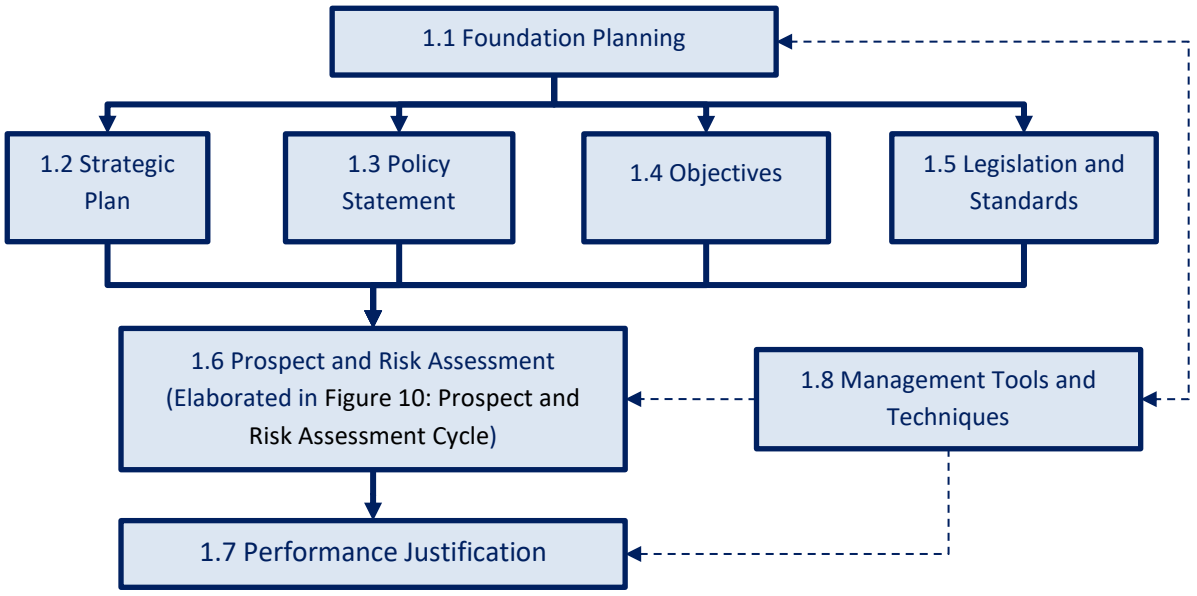


Figure 9: Assessment and Development of Controls Subsections

E.1.1. Foundation planning

< The purpose of foundation planning is to formulate and organize the general arrangements for implementing the organisation's purpose and goals while aligning with its stakeholders' needs and expectations. Foundation planning helps define the context of the organisation and help structure and organize the more detailed management planning processes covered in the following sections.

Stakeholder needs and expectations may be shared or held individually and possibly conflict. This is more likely to be optimal if a fully integrated management approach is adopted. Stakeholder needs and expectations typically relate to:

- Goods and services delivered by the organisation,
- Interactions with the organisation impacting them as an organisation or an individual,
- Personnel health and safety and welfare,
- Impacts on the local and general environment,
- Local and general social impacts,
- Local and general commercial impacts.

Stakeholder needs and expectations may be impacted by a wide range of aspects applicable to the structures and processes of the organisation – refer to Appendix 6: General Aspects of an Organisation.

The organisation should identify its principal structures and processes that deliver its purpose including how these interact and provide support to each other. This aids the planning and structuring of prospect and risk assessments – refer to section E.1.6.1 Prospect and risk assessment planning and Appendix 3.4 Prospect and risk register structure.

The establishment of an inventory of the organisation's significant structures and processes data aids the orderly conduct of foundation planning refer to section E.4.2.1 Databases. These should ideally be readily searchable hierarchical structures.

An organisation's external environment typically includes:

- Customer Markets,
- Competition,
- Technology,
- Supplier markets,
- Labour markets,
- The economy,
- Legislation and regulation,
- Local and general physical environment.

Cyclic management activities typically include:

- Submission of mandatory reports,
- Tax payments due,
- Planned monitoring,
- Review of elements of management system – refer to section E.12.1 Review scheduling,
- Management review meetings – refer to section E.12.1 Review scheduling,,

- Personnel reviews,
- End of financial year.

If necessary cyclic plans of management activity should be supported by integrated subordinate cyclic plans.

General planning should be elaborated and cascaded down throughout the organisation via a hierarchy of integrated subordinate planning.

Foundation planning processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Boston grid
- Brainstorming
- Cause and effect analysis
- Check sheets
- Data handling and display
- Decision tree
- Flow chart
- Focus groups
- Focus groups
- Infrastructure tour
- Interviews
- Nominal group technique
- Pareto analysis
- Pareto charts
- Political, economic, sociological, technological, legislation and environment analysis
- Portfolio analysis
- Prioritization matrix
- Probability and consequence grid/diagrams
- Process flow charts
- Project profile model
- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk workshop
- Rag status reports
- Ranking and rating
- Relations diagram
- Resource analysis
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis
- Visualization techniques
- Voting

E.1.2. Strategic plan

< The strategic plan is a key output of foundation planning and defines the key strategic requirements that must be implemented by tactical and operational structures and processes. There should be transparent integration between strategy, tactics and operations and should be implemented via Plan-Do-Check-Act management cycles.

Strategy and strategic processes should address future aspirations and demands such as:

- Changing the organisation's structures, processes, goods and services through the exploitation of available technological innovation,
- Organisation size in terms of financial turnover and number of employees,
- Achieving the organisation's vision, mission and values,
- Implementing significant new and changed legislation and standards,
- Personnel recruitment, contract labour, labour market, competency and succession planning,
- Changing the organisation as an entity, changing goods and services markets and marketing requirements, significant potential contracts, financing, personnel remuneration, competition, and economic climate,
- Data requirements and its exploitation,
- Matter and energy requirements including suitable and sufficient infrastructure and geographical locations,
- Outsourcing and use of suppliers to provide expert advice and specialist services, labour and other goods and services.

Strategic planning processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Boston grid
- Decision tree
- Focus groups
- Gap analysis
- Nominal group technique
- Political, economic, sociological, technological, legislation and environment analysis
- Process flow charts
- Project profile model
- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk workshop
- Rag status reports
- Ranking and rating
- Relations diagram
- Resource analysis
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis

- Visualization techniques
- Voting

E.1.3. Policy statement

< The organisation' policy is the driver for implementing and improving its management system so that it can maintain and potentially improve all aspects of performance consistent with the expectations of top management and the organisation's stakeholders.

It should therefore reflect the commitment of top management to comply with legislation and adopted standards and attempt to equitably and ethically satisfy the needs and expectations of the organisations stakeholders while making the best use of resources. The policy forms the basis upon which the organisation sets its objectives.

The purpose of the policy statement is to clearly communicate the organisation's direction and values to the stakeholders and what must be visible throughout all management activity including the management system.

Policy may be documented via a concise single page policy statement supplemented by a more detailed policy statement(s) elaborating on issues in sufficient detail to meet the needs of stakeholders.

Placing the policy statement(s) on the world-wide-web is a very effective way of communicating it to stakeholders.

Management leadership, the management system, the organisation culture and the collective competence together form an internal climate that supports and nurtures the organisation's purpose and objectives. Leadership and the sustained influence of the management system establish a positive organisation culture over time.

Overt and covert data management is covered in section E.4.2.10 Access.

Policy development processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Focus Groups
- Gap Analysis
- Political, Economic, Sociological, Technological, Legislation and Environment Analysis

E.1.4. Objectives

< Objectives help drive positive change and continual improvement by focusing attention on key aspects of the strategic, tactical or operational functionality of the organisation or a project. Objectives should be defined that reflect the overall strategy and policy of the organisation or project and deliver the best value for the expenditure of effort – see also sections E.1.2 Strategic plan, E.1.3 Policy statement and Appendix 6: General Aspects of an Organisation.

The purpose and objectives of the organisation should be cascaded down through the organisation and redefined at every level so that they clearly define purpose and objectives appropriate to the structures and processes at that level.

E.1.5. Legislation and standards

< The organisation needs to identify the legislation obligations that are applicable to its aspects and determine how they apply to the organisation. The obligations include legal requirements that the organisation is must comply with, and those obligations which the organisation has discretion over whether or not to adopt. Legal obligations are mandatory requirements issued by governmental entities and may be international, national or territorial.

Compliance obligations also include other stakeholder requirements related to its aspects, to which the organisation chooses to adopt.

The organisation's process for determining the needs and expectations of stakeholders is important when determining which obligations it has discretion over, and which it will be adopt – refer to section E.1.1 Foundation planning.

The primary difference between a legal requirement and a voluntary obligation is that the organisation chooses to adhere to its voluntary obligations. However, in many cases, once that choice is made, adherence is mandatory, particularly where legally binding agreements are made.

The purpose of determining applicable legislation and standards is to assist in the determination of the rules and guidance that are required to optimally perform the organisation's processes such that they equitably meet the needs and expectations of its stakeholders making the best use of resources.

To create a more structured and orderly database of information, legislation significant to the organisation and other adopted standards can be conveniently classified with respect to the following management topics that align with the principal sections of the MSS:

0. General management,
1. Assessment and development of controls,
2. Personnel,
3. Commerce,
4. Data,
5. Matter and energy including waste,
6. Suppliers,
7. Good and service delivery,
8. Contingencies,
9. Change,
10. Reactive investigation,
11. Planned monitoring,
12. Review and action.

An organisation can use a variety of methods to maintain its knowledge and understanding of its legislation and standards compliance status, including

- Review of documented information, i.e., procedures, documents, records,
- Facility tours or inspections,

- Direct observation and interviews,
- Project or work reviews,
- Review of sample analysis or test results, and comparison to regulatory limits,
- Verification sampling/testing,
- Compliance audits, including those conducted by first, second or third parties.

Management arrangements implementing the remaining sections of this standard should take account of applicable legislation and standards. Contingency planning is required under some legislation and is applicable to section E.7.2 Contingencies.

Legislation and standards compliance planning processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Gap Analysis
- Infrastructure Tour
- Political, Economic, Sociological, Technological, Legislation and Environment Analysis
- Tables
- Tree Diagram

E.1.6. Prospect and assessment

< Organisations exist to fulfil a purpose and mission but to achieve this the organisation must address the uncertainties contained in the prospects and risks of equitably satisfying the needs and expectations of its stakeholders and also the uncertainties and variations in its internal structures and processes and in the external environment that the organisation operates in. The structures may also be open systems that may exhibit unpredictable chaotic behaviour adding to uncertainty. Organisations can improve the likelihood of realizing their objectives by systematically conducting prospect and risk assessments and developing prospect and risk controls using methodologies with an appropriate degree of sophistication for each circumstance. The only justification for using any degree of systematic prospect and risk assessment is where the organisation is likely to be more successful employing it than not or to satisfy a stakeholder requirement. All structures and processes should ideally add optimal value. The organisation or project should not deploy resources in conducting any prospect or risk assessment or with a degree of formality where there is little expectation of adding value, unless it is a stakeholder requirement.

The purpose of prospect and risk assessment processes is to seek potential solutions and assess the associated prospects and risks with respect to satisfying stakeholder needs and expectations while making the best use of resources. Consultation with relevant stakeholders should be conducted throughout prospect and risk assessments, as necessary – refer to section E.2.5.2 Communication, consultation, participation and reporting.

Prospect and risk assessment should consider intended and unintended consequences of all significant structures and processes. It assists personnel acting individually or in teams to creatively identify and evaluate alternative options and associated risks to facilitate creative innovative thinking. Prospect and risk assessment facilitates the defining and implementing physical and administrative controls designed to improve the prospect of the organisation being more successful and the reduction of risk

It is also essential to communicate organisation and project prospects and risks prior to personnel performing processes.

Prospect and risk pervade structures and processes relating to an organisation's:

- Strategy, tactics and operations,
- Internal and external environment,
- People, commerce, data, matter and energy, and suppliers,
- Stakeholder needs and expectations including conflicts.

It is important that the approach used is appropriate and that the required resource is appropriate to the potential for the structure and/or process to provide value to or negatively impact stakeholders. This ensures that the best use is made of the management resource in providing the maximum value in return for the effort expended.

A wide range of management tools and techniques are available to guide prospect and risk assessment processes. See also section E.1.8 Management tools and techniques.

A prospect and risk assessment general approach is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. The cycle of prospect and risk planning, identification, analysis, assigning of controls and their acceptance should be repeated until an acceptable level of residual prospect and risk is achieved.

Intelligent threats present a special challenge for prospect and risk management because the source of the threat may change when the person(s) has knowledge of the proposed or implemented prospect and/or risk controls. The source of an intelligent threat could be a criminal or a competitor. The threat can be external or internal to the organisation. See also section E.4.2.10 Access. Ideally, structures and processes should be intrinsically safe and not rely on engineered or administrative controls to reduce risk

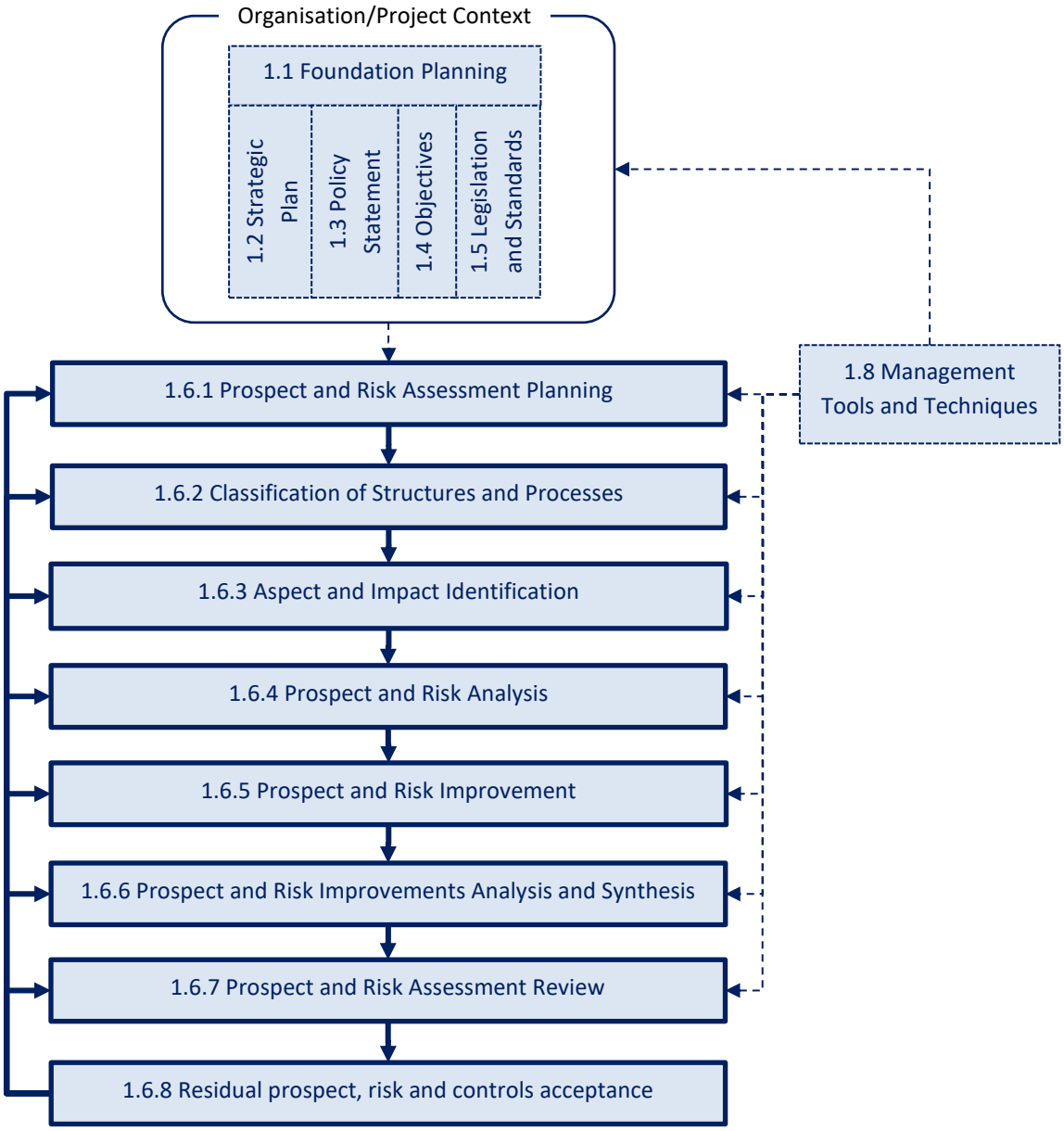


Figure 10: Prospect and Risk Assessment Cycle

E.1.6.1. Prospect and risk assessment planning

< The role of planning within prospect and risk assessment as a whole is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. Careful planning of the prospect and risk assessments is important to ensure that appropriate methodologies are applied with an appropriate degree of rigour, by competent personnel, for each aspect of the organisation's structures and processes – refer to Appendix 6: General Aspects of an Organisation. This helps achieve the greatest degree of management control for the amount of resource expended.

The degree of application of prospect and risk assessment can only be justified by the degree that it may facilitate improved management control and the adding of value to the various facets of organisation performance. Prospect and risk assessment should therefore not be applied blindly or

ritualistically but with good judgement and common sense. In addition to the aspects that the organisation can control directly, it needs to determine whether there are aspects that it can indirectly influence. These may be related to goods and services used by its suppliers, as well as goods and services that it delivers to others external to the organisation. Irrespective, it is the organisation that should determine the degree of control and influence that it is able to exercise over its aspects and impacts.

Prospect and risk assessment planning processes should address the appropriate selection and application of specific management tools and techniques to ensure that they add value when used in appropriate circumstances – refer to section E.1.8 Management tools and techniques. These may potentially include:

- Aspect and impact questionnaires
- Bayesian statistics
- Boston grid
- Bowtie
- Cause and effect analysis
- Check sheets
- Cost benefit analysis
- Data handling and display
- Decision tree
- Delphi technique
- Event tree analysis
- Expected value method
- Failure mode and effects analysis
- Failure prevention analysis
- Flow chart
- Focus groups
- Gap analysis
- Hazard and operability study
- Heat maps
- Hierarchical task analysis
- Infrastructure tour
- Icam-definition
- Interviews
- Latin hypercube
- Line graph
- Matrix diagram
- Monti carlo analysis
- Nominal group technique
- Pareto analysis
- Pareto charts
- Political, economic, sociological, technological, legislation and environment analysis
- Probability and consequence grid/diagrams
- Probability trees
- Process decision program chart
- Process flow charts
- Profile graphs
- Project profile model
- Prospect and/or risk mapping and profiling

- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk register/database
- Prospect and/or risk workshop
- Qualitative prospect and/or risk assessment
- Quantified prospect and/or risk assessment
- Rag status reports
- Ranking and rating
- Relations diagram
- Risk breakdown structure
- Risk checklists/prompt lists
- Scatter diagram
- Sensitivity analysis
- Solution effect analysis
- Strengths weaknesses, opportunities and threats analysis
- Stress testing
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis
- Visualization techniques
- Voting
- Waterfall charts
- Why – why diagrams

The following specialist management tools and techniques may be used to analyse factors impacting human performance:

- Absolute probability judgment
- Human cognitive reliability method
- Human error assessment and reduction technique
- Influence diagram approach
- Paired comparisons
- Success likelihood index method
- Technique for human error rate prediction
- Tecnica empirica stima error operator

Application to all aspects of performance

Prospect and risk assessments should consider all aspects of performance including personnel, commercial, data, matter, energy, suppliers, normal and contingency structures and processes, change, reputation and security etc., and attempt to equitably balance the needs and expectations of customers and other stakeholders while making the best use of resources. This requires that conflicting stakeholders' needs and expectations are systematically identified and where possible resolved or optimised by applying creative or innovative solutions. Standard methodologies may help in facilitating this process – refer to section E.1.8 Management tools and techniques.

General and specialist prospect and risk assessments should be selected and used depending on the structures and processes of the organisation. Specialist risk assessments typically cover issues such as:

- Personnel stress,
- Contracts,
- Projects,
- Hazardous substances,
- Special classes of person such as those with disabilities, young persons, pregnant women, nursing mothers,
- Rehabilitation of persons after long-term absence due to sickness etc.,
- Noise or vibration,
- Manual handling,
- Suitability of personal protective equipment,
- Confined spaces,
- Special classes of persons covered in section E.2.4.4.4 Fitness.

Legal assessment requirements

The conduct of prospect and risk assessments is often influenced by applicable legislation or standards as per section E.1.5 Legislation and standards. However, these requirements should be exceeded where necessary to ensure that the organisation's and stakeholder's objectives are optimized.

Selection of management tools

The organisation should select from the wide range of management tools and techniques that are available to help in guiding prospect and risk assessment processes – refer to section E.1.8 Management tools and techniques and Appendix 4: Management Tools and Techniques. Prospect and risk assessment methodologies should only be adopted and used to a degree that adds value.

Stakeholder specific assessment requirements

Prospect and risk acceptance criteria needs to take account of the prospect of gain and the risk of loss such that these are acceptable to stakeholders and take account of concepts such as; 'As Low as Reasonably practicable (ALARP)', 'Risk tolerability', the 'Precautionary Principle', 'Best Available Technique (BAT)' and 'Best Practicable Environmental Option (BPEO)' etc. appropriate to the organisation and industry sector. Where conflicts arise between the needs and expectations of stakeholders, management creativity should be applied to identify prospects for their potential resolution.

Scope of application of prospect and risk assessments

The following are typical elements of an organisation's structures and processes that need strategic, tactical and operational prospect and risk assessments and span all of the organisations multiple facets of performance:

- Personnel including stress,
- Commerce,
- Data,
- Matter and energy including infrastructure and materials,
- Goods and services supply chain,

- Goods and services delivery chain,
- Contingency arrangements,
- Temporary and permanent change including experiments.

Integrated prospect and risk assessments

The organisation should decide if it wishes to integrate any of the prospect and risk assessments, either individually or collectively, with respect to goods and services quality, health, safety, environment, commerce etc. e.g. dust created during a process may impact goods and service quality, health, safety and environment.

Collective impact of common behaviours

An organisation's aspects that have a potential to collectively cause external impacts typically include environmental aspects such as emissions to air, releases to water, releases to land, use of raw materials and natural resources, use of energy, energy and generation of waste and by-products. Although an organisation's behaviour considered in isolation may have a limited and often negligible impact, if considered collectively with similar behaviour in other organisations the overall impact can be highly significant locally or even globally. This is why the individual behaviour of the organisation must be assessed as a collective shared behaviour.

E.1.6.2. Classification of structures and processes

< The classification of physical and non-physical structures and processes according to their potential impact perceived stakeholder needs and expectations allows controls to be appropriately applied to prospect and risk assessment processes i.e. more sophisticated and rigorous assessments would be applied to structures and processes with a higher perceived potential to impact stakeholder needs and expectations. The process assists applying graded management control resulting in effective and efficient use of management resource.

An example of a classification system using high, medium and low is provided in Appendix 2: Classification of Structures and Processes Example. The system takes account of the risks directly associated with the system and the potential for mismanagement due to its complexity or novel features beyond the experience of the organisation.

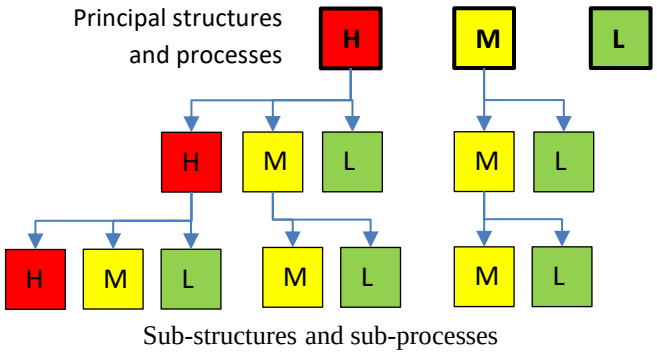


Figure 11: Risk Classification

After an initial classification of the principal structures and processes, some of the sub-structures and sub-processes may be classified at lower classifications where applicable as shown by the hierarchical structure in Figure 11: Risk Classification. The principal may be applied right down to the atomic level of structures and processes. This allows management resource to be used economically by focusing on structures and processes according to their perceived impact rather than applying the same degree of management attention to all structures and processes.

Classifying structures according to the degree that they have the potential for loss and gain helps to systematically apply appropriate management control. Any classified structure or process requires a defined level of competent manager, rigor of prospect and risk assessment, and monitoring etc. It also helps prospect and risk assessment to be accepted as sensible and valuable.

See also section E.6.1 Classification, vetting and control.

E.1.6.3. Aspect and impact identification

< The role of aspect and impact identification within prospect and risk assessment is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. Prospects of fulfilling the purpose of the organisation or project or structure or process while equitably satisfying stakeholder needs and expectations should be identified. This should be achieved via creative innovative thinking conducted individually or in teams using appropriate methodologies – refer to section E.1.8 Management tools and techniques. The intended and unintended consequences of each prospect should be identified.

Prospect and risk identification processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Aspect and impact questionnaires
- Boston grid
- Cause and effect analysis
- Check sheets
- Delphi technique
- Failure mode and effects analysis
- Failure prevention analysis
- Flow chart
- Focus groups
- Gap analysis
- Hazard and operability study
- Hierarchical task analysis
- Infrastructure tour
- Icam-definition
- Interviews
- Line graph
- Matrix diagram
- Nominal group technique
- Political, economic, sociological, technological, legislation and environment analysis
- Probability and consequence grid/diagrams
- Probability and consequence grid/diagrams
- Process decision program chart
- Process flow charts
- Project profile model
- Prospect and/or risk mapping and profiling
- Prospect and/or risk register/database
- Prospect and/or risk workshop
- Relations diagram
- Risk breakdown structure

- Scatter diagram
- Strengths weaknesses, opportunities and threats analysis
- Stress testing
- Surveys
- Tables
- Tree diagram
- Visualization techniques
- Why – why diagrams

E.1.6.4. Prospect and risk analysis and synthesis

< The role of analysis and synthesis within prospect and risk assessment as a whole is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. The intended and unintended consequences of existing or proposed structures and processes should be analysed and synthesized using appropriate prospect and risk assessment methodologies – refer to section E.1.8 Management tools and techniques and Appendix 4: Management Tools and Techniques.

The application of analysis and synthesis ensures that the individual and collective impact of elements is addressed contributing to prospects and hazards.

Attempts should always be made to meet stakeholder needs and expectations via creative innovative thinking conducted individually or in teams.

Prospect and risk assessments should be recorded using prospect and risk registers or other suitable database. This may be in the organisations own format or that supplied by a stakeholder which also satisfies the organisation's requirements. A stakeholder format should not be adopted that does not satisfy the organisation's requirements, which can also be required by legislation.

An example of a universal prospect and risk rating system for the conduct of integrated prospect and risk assessments is provided in Appendix 3: Prospect and Risk Rating System Example.

Expert advice should be sought for the selection and application of numeric prospect and risk assessment tools and methodologies which should be used by competent personnel – refer to sections E.2.3 Provision of expert advice and assistance and E.2.4.4 Competence.

Prospect and risk analysis and synthesis processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Bayesian Statistics
- Boston Grid
- Bowtie Cause and Effect Analysis
- Check Sheets
- Cost Benefit Analysis
- Data Handling and Display
- Decision Tree
- Delphi Technique
- Event Tree Analysis
- Expected Value Method

- Gap Analysis
- Heat Maps
- Latin Hypercube
- Matrix Diagram
- Monti Carlo Analysis
- Nominal Group Technique
- Pareto Analysis
- Pareto Charts
- Political, Economic, Sociological, Technological, Legislation and Environment Analysis
- Probability Trees
- Process Decision Program Chart
- Prospect and/or Risk Mapping and Profiling
- Prospect and/or Risk Modelling and Simulation
- Prospect and/or Risk Register/Database
- Prospect and/or Risk Workshop
- Qualitative Prospect and/or Risk Assessment
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- RAG Status Reports
- Ranking and Rating
- Risk Breakdown Structure
- Scatter Diagram
- Sensitivity Analysis
- Solution Effect Analysis
- Stress Testing
- Tables
- Uncertainty Analysis
- Value Analysis
- Waterfall Charts

E.1.6.5. Prospect and risk improvement

< The role of prospect and/or risk improvement within prospect and risk assessment is to increase prospect and/or reduce risk. Its part in prospect and risk assessment as a whole is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. **Error! Reference source not found.**Prospect and risk controls may be engineered into structures and processes or may be administrative and form part of the management system.

It should be noted that the effectiveness of risk controls associated with an intelligent threat will to a large extent be dependent on the relative effectiveness of risk reduction barriers compared with those of other organisations – the perceived softer target will naturally be selected. A self-serving irresponsible individual or organisation will tend to seek out weaknesses in risk barriers and the organisations with the weaker barriers will be the most vulnerable as they are selected preferentially to organisations with more robust risk barriers.

Taking account of the uncontrolled prospect and/or risk analysis and synthesis, attempts should be made to improve prospects and/or risks by the application of engineered or administrative controls to achieve a tolerable or excellent level. Risk should be reduced to a level that is low or otherwise tolerable and definitely not unacceptable. Prospect and/or risk controls should be applied that are appropriate to the assessed level of prospect and/or risk respectively. Prospect and risk controls

should take account of relevant legislation and codes of good practice – refer to section E.1.5 Legislation and standards. Selection of prospect and risk controls should take account of a prospect enhancement and risk reduction hierarchy such as the following:

- Elimination,
- Substitution,
- Transfer, share, cooperate,
- Engineered controls (includes computer system embedded rules),
- Administrative controls (competence, training, procedures, signage, conventions etc.)
- Personal protective equipment (health and safety),
- Contingency arrangements – refer to section 0 Contingency Structures and Processes.

Risk of environmental pollution may be prevented or reduced by source reduction or elimination, structure or process change, efficient use of matter and energy including substitution, reuse, recovery, recycling, reclamation and treatment and contingency arrangements.

Redundancy, diversity, segregation and limiting the size of inventory may be used to increase prospect and/or reduce risk in the design of structures and processes.

Risk may be considerably reduced by employing multiple diverse physical or administrative protective barriers known as defense in depth. However, multiple prospect/risk barriers have the potential to fail via common cause failure. Personnel can be a typical source of common cause failure e.g. the same person may operate, maintain or malevolently interfere with the intended independent diverse barriers. This type of risk may be reduced by disallowing a single person to perform critical actions and to minimise the possibility of group conspiracies. See also section E.5.4.5 Access, egress and protective barriers.

Commercial prospects may be increased or risks may be reduced through redundancy so that for example the organisation is not unduly dependent on a single customer or supplier respectively and also through diversity where for example supply of a good or service would not fail because of a common cause. Regulation is often used to reduce the dominance of large powerful This MSS has been created by focusing on first principles rather than a superposition of existing management system standards. It has been attempted to design the MSS so that it is both elegant and functional. The first issue of this standard in 2014 took account of 17 guiding principles contained in this section of the standard. These have since been extended and published in the IMC Paper: Integrated Management Definition and Elaboration. Optimal synergistic benefit will be received if the principles are applied collectively rather than in isolation.
which may inequitably act against stakeholder needs and expectations and may also present an unacceptable risk should they fail because of their size. Governments may also act to stop the failure of large organisations believing them to be of such strategic importance that they are too large to fail.

Where significant risk mitigation may be achieved following an event, arrangements should be developed as required in section 0 Contingency Structures and Processes.

Residual prospect and risk must be low or tolerable as judged by stakeholders. Expert advice should be sought if this is in doubt.

Selection of prospect and/or risk controls may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Bowtie Cause and Effect Analysis
- Cost Benefit Analysis
- Decision Tree
- Heat Maps
- Monti Carlo Analysis
- Process Decision Program Chart
- Profile Graphs
- Prospect Assessment
- Prospect and/or Risk Mapping and Profiling
- Prospect and/or Risk Modelling and Simulation
- Prospect and/or Risk Register/Database
- Prospect and/or Risk Workshop
- RAG Status Reports
- Ranking and Rating
- Checklists
- Stress Testing
- Tables
- Utility Theory
- Value Analysis
- Voting
- Waterfall Charts

E.1.6.6. Prospect and risk improvements analysis and synthesis

< The role of prospect and/or risk analysis and synthesis following prospect and/or risk improvement within prospect and risk assessment as a whole is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. It is conducted to determine the residual prospects and risks and to provide data to establish how much prospect and/or risk improvement has been achieved. If the prospect and/or risk controls are ineffective the organisation/project/task etc. may be exposed to the uncontrolled prospect and/or risk.

E.1.6.7. Prospect and risk assessment review

< The role of prospect and risk assessment review as part of prospect and risk assessment as a whole is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**. It is important that prospect and risk assessments remain relevant and fit for purpose. When the circumstances change is an obvious trigger for a review but a policy for periodic review is required because changes in the circumstances may have occurred and have remained unrevealed or not acted upon. New opportunities for prospect and risk controls may also have occurred through technological or other innovation.

E.1.6.8. Residual prospect, risk and controls acceptance

< The role of residual prospect and risk and associated controls acceptance within overall prospect and risk assessment is shown in Figure 10: Prospect and Risk Assessment Cycle**Error! Reference source not found.**.

The designated responsible manager should be confident that the prospect and/or risk assessment has been conducted according to the organisation's approved arrangements making use of expert advice and support as appropriate. Prospect and risk controls should be capable of effective and efficient planned monitoring – refer to section 0 Planned Monitoring.

It should be noted that there is normally limited knowledge when it comes to rare or novel events with serious consequences due to the rarity of the occurrence of such events. In such circumstances the organisation should apply the precautionary principle to ensure that there is sufficient knowledge of the associated prospect and risk to justify a proposal – see section E.1.7 Performance justification.

The degree and criticality of the prospect and risk controls should influence the planned monitoring associated with structures and processes – refer to section 0 Planned monitoring.

Management arrangements implementing the remaining main sections of this standard should take account of prospect and risk assessments. Some prospect and risk controls include contingency arrangements, which are covered in section E.7.2 Contingencies.

E.1.7. Performance justification

< Stakeholders may also require organisations to produce a structure and/or process justification, e.g. safety cases for major hazard industrial plants, justification of measurement processes in laboratories and submissions to planning or licensing authorities. These generally constitute a structured argument supported by evidence to provide a required level of stakeholder confidence.

Responsibilities and arrangements need to be defined for ensuring that the performance justifications remain current and legitimate.

Performance justifications are often contained in design dossiers, project files, safety cases, planning applications etc. and typically include 'prospect and risk assessments', 'Structure and process definitions', test data and research findings etc. and specific requirements to be demonstrated for a regulator – refer to sections E.1.6 Prospect and risk assessment, 0 Normal Structures and Processes and 0 Contingency Structures and Processes.

E.1.8. Management tools and techniques

< A very large number of deterministic and statistical management tools and techniques are available for improving structures and processes, helping to manage under uncertainty and to aid the control of processes (e.g. statistical process control). The organisation should identify those that have been selected for use and the circumstances in which they should be used. It is important that personnel using the techniques are competent as covered in section E.2.4.4 Competence.

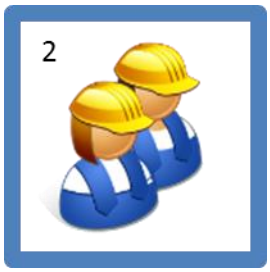
Management tools and techniques are, in principle, applicable to the management of any type of performance provided that the use is appropriate to the circumstances and objective. They are

designed to be used individually and/or in groups. They are particularly relevant to the following MSS sections:

- C.1 Assessment and Development of Controls, E.1
- C.3.2 Marketing, E.3.2
- C.3.3.3 Contract implementation, E.3.3.3
- C.4.3 Data Processing, E.4.3
- C.4.4 Conventions, E.4.4
- C.7.1 Structure and process design and development, E.7.1
- C.8.1 Contingency planning, E.8.1
- 0 Change, 0
- 0 Reactive Investigation, 0
- C.11.1 Monitoring planning, E.11.1
- 0 Review and Action, 0

A non-exhaustive list is provided in Appendix 4: Management Tools and Techniques.

E.2. Personnel



< Personnel are the most important asset of any organisation and this section covers their management including: organisation, responsibilities, authorities, communications, stakeholders, conflict resolution and the complete employment life cycle from recruitment through to leaving. It contains the management of some high-risk issues that organisations have to be addressed such as recruitment and ensuring that people are competent for their posts and roles.

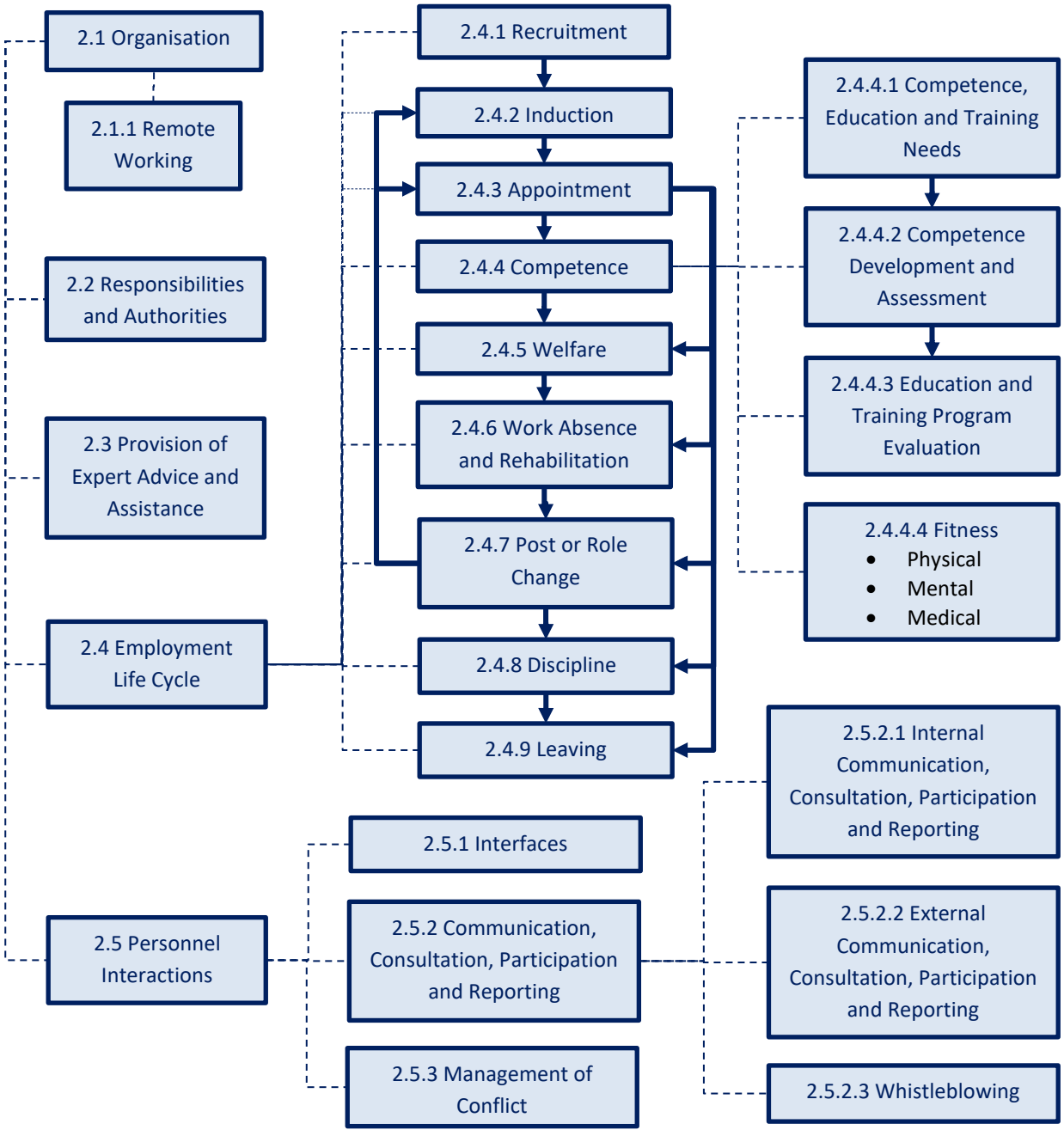


Figure 12: Personnel Subsections

E.2.1. Organisation

< An organogram is commonly used to define an organisation's structure.

Cross functional groups may be established to focus on the solving of particular problems or to bring about a particular type of improvement. Organisation should also be established for maintaining and continually improving the management system, which is one of its most valuable assets – see also section E.12.2 Review and Appendix 8.2 Project Organisation.

E.2.1.1. Remote working

< Remote working may include:

a) Working at home or another remote location including teleworking,
b) Travelling between locations,
c) Working within another organisation.

See also sections E.5.4.2 Work environment and E.5.4.3.4 Data equipment.

E.2.2. Responsibilities and authorities

< Responsibilities and authorities within the management system should generally be defined for posts and roles rather than a named person to avoid amendment when there are staff changes. A schedule should be maintained showing staff and deputies for each post and role, as applicable. Refer to section C.4.1 Management system structure.

Job descriptions may be stand-alone documents or included as part of other documents. The ability to separately print job descriptions is useful to be able to send to potential applicants during the recruitment process.

Job descriptions competency may reference the competency schedule to avoid reissue when competency requirements are revised – refer to E.2.4.4 Competence.

Responsibilities and authorities should typically include, as applicable:

- Management of the management system,
- Planning and performing of prospect and risk assessment and the acceptance of residual prospect and risk,
- Structure and process ownership,
- Commerce,
- Setting and agreeing the planned monitoring program,
- Project management,
- Initiating and managing change,
- Conduct of reactive investigation and planned monitoring,
- Management review.

The content of job descriptions constitutes administrative prospect and risk controls and should take account of potential human error and violation. An individual's responsibility and authority e.g. should be linked to the classification of structures and processes – refer to section E.1.6.1 Prospect and risk assessment planning and Appendix 2: Classification of Structures and Processes Example.

The degree that personnel are empowered to optimise the functionality of the organisation will depend on the complexity of structures and processes, the distribution of competency and risks associated with the delivery of goods and services. Personnel and operational teams as far as practicable should be self-administering with an appropriate degree of supervision and monitoring commensurate with the opportunities and risks.

Authority should prevent a person acting in isolation of others in critical decision-making and the signing of major contracts etc. – refer to section E.3.3.1 Pre-Contract.

Responsibility and authority for covert arrangements may be covert.

E.2.3. Provision of expert advice and assistance

< Expert advice and assistance may be sourced within the organisation or externally. Refer to Table 1: Aid for identifying expert advice and support needs. Not every cell in the table will necessarily be relevant to an organisation.

		Strategy	Tactics	Operations	Structure and Process: goods/service quality	Health and safety	Environment	Security	Finance	Other?
Standard Specific Requirements	1 Assessment and Development of Controls	?	?	?	?	?	?	?	?	?
	2 Personnel	?	?	?	?	?	?	?	?	?
	3 Commerce	?	?	?	?	?	?	?	?	?
	4 Data	?	?	?	?	?	?	?	?	?
	5 Matter and Energy	?	?	?	?	?	?	?	?	?
	6 Suppliers	?	?	?	?	?	?	?	?	?
	7 Good and Service Delivery	?	?	?	?	?	?	?	?	?
	8 Contingencies	?	?	?	?	?	?	?	?	?
	9 Change	?	?	?	?	?	?	?	?	?
	10 Reactive investigation	?	?	?	?	?	?	?	?	?
	11 Planned monitoring	?	?	?	?	?	?	?	?	?
	12 Review and Action	?	?	?	?	?	?	?	?	?

Table 1: Aid for identifying expert advice and support needs

E.2.4. Employment life cycle

< The arrangements should cover directly employed and contracted personnel working part or full time in whatever way.

Employment legislation should be complied with throughout and records generated to demonstrate compliance – refer to sections E.1.5 Legislation and standards and E.4.2.9 Records.

E.2.4.1. Recruitment

< Recruitment is a potentially high prospect and risk process unless it is effectively controlled and prospect and/or risk based or prospect and/or risk informed.

A copy of the job description, application form and a self-certification medical questionnaire should be sent to each potential applicant.

Applications should be collated, objectively analysed and a short list for interviewing compiled.

Standard interview letters should be sent to all shortlisted candidates by recorded delivery.

Interview panels should include managers who will be directly responsible for the recruited personnel. The same question set should be used for all interviewees. Each interviewer should make clear notes with respect to each question and the reasons for wishing to accept or reject the applicant. Interview records should provide a clear justification for the appointment and rejection of personnel.

It is important that references are sought by letter or phone and key qualifications are confirmed as valid by the issuing body.

All candidates should be notified of the result and the unsuccessful candidates thanked for their participation.

E.2.4.2. Induction

< Ensuring that persons doing work under the organisation's control are actively involved is critical to the success of the management system. In particular, the participation of the organisation's employees and the level of information provided to them are key factors to the achievement of compliance and continual improvement of both the management system and overall performance of the organisation.

The policy commitments need to be memorized and persons doing work under the organisation's control do not need to have a copy of the actual policy document – however, they should be aware of its existence, its purpose and their role in achieving the commitments.

It is very important that new recruits are properly supervised until their induction has been completed.

Interactive discussion should be encouraged during the explaining of the organisation's policy to provide a deeper understanding and awareness of the issues.

E.2.4.3. Appointment

< Personnel should only be assigned to posts, roles and tasks for which they are competent or appropriately supervised.

Original competency certificates should be obtained and copies retained and authenticated as true copies.

Contract of employment document template(s) should be established and current with organisation policy and legislation. Contracts should cover or reference:

- Hours to be worked,
- Job description,
- Drugs and Alcohol procedure,
- Accident reporting procedure,
- Refusal to work on grounds of health and safety,
- Commencement date,
- Pensions,
- Holidays,
- Disciplinary process,
- Grievance process,
- Sick pay.

Appointee should be added to personnel and organisation database(s) – refer to E.4.2.1 Databases.

E.2.4.4. Competence

< The organisation's competency schedule should be determined from an analysis of its process definitions – refer to section **Error! Reference source not found.** Process design. The schedule should take account of prospect and risk assessment covered in section E.1.6 Prospect and risk assessment. Where necessary it should describe responsibility levels e.g. for a project manager who may be assigned to a certain size and complexity of contract. See also E.2.2 Responsibilities and authorities.

It may be convenient to define specific competencies by referencing the procedure or instruction that defines the task(s). The degree of competence may be defined using a scale such as that defined by Table 2: Competence levels:

Table 2: Competence levels

Competence Level	Interpretation	Competence Definition
1	Aware.	Aware of the key issues and how they are controlled and managed. This competence level may be sufficient for a senior line manager or a non-line manager not directly involved in directly managing a process.
2	Competent to perform under supervision.	Competent to perform defined duties or processes under the direct supervision of an expert.
3	Competent to perform unsupervised.	Competent to perform defined duties or processes unsupervised.
4	Expert	Competent to perform defined duties or processes unsupervised, provide expert advice, train, supervise and mentor personnel who are developing competence.

Competent Personnel may be directly employed or contracted via an approved supplier – refer to section 0 Suppliers.

Effective planning must be applied to ensure that personnel are only assigned to posts, roles and tasks for which they are competent or appropriately supervised.

Competence requirements may change following changes to structures and processes – refer to section 0 Change.

E.2.4.4.1. Competence, education and training needs

< The training needs program should include the costs of delivery so that it can form part of the annual financial budget that will be approved as part of the management review process – see section 0 Review and Action.

Training needs should cover explicit and tacit knowledge.

E.2.4.4.2. Competence development and assessment

< The organisation should ensure that competence development is focused where it will contribute most to satisfying the needs and expectations of stakeholders and will provide the best value for money.

Effective and efficient communication is critically important to competence development and its assessment – refer to E.2.5.2 Communication, consultation, participation and reporting.

Personnel should be made accountable through effective monitoring, review and appraisal to ensure that what is required is actually delivered, and where appropriate action is initiated. Feedback should be constructive but where significant human violations have occurred disciplinary action should be considered.

E.2.4.4.3. Education and training program evaluation

< The organisation should create a standard form for recording feedback on the performance of education and training programs.

E.2.4.4.4. Fitness

< Fitness includes physical fitness, mental fitness, and medical fitness and are important aspects of competence.

Special classes of people typically include the disabled, people with health problems, young people, pregnant women, nursing mothers etc. Special risk assessments are required as per section C.1.6.5 Prospect and risk improvement.

Structures and processes should be selected or designed and operated taking account of the fitness of personnel and the guarding against potential workplace stressors as per sections 0 Normal Structures and Processes and 0 Contingency Structures and Processes.

Managers should be open to personnel reporting stress or welfare or other problems or behaving unusually and interview them and take appropriate action. If appropriate, managers should review workplace risk assessments covered in section E.1.6 Prospect and risk assessment and structure and process definitions covered in section **Error! Reference source not found.** Process design.

If drugs and alcohol forms part of the policy, personnel should be subjected to 'for-cause alcohol and drug testing' when their behaviour gives cause for concern or in circumstances required by stakeholders. The suspected personnel should be supervised or removed from the workplace until the test proves negative. If positive, disciplinary action should be initiated as per section E.2.4.8 Discipline.

E.2.4.5. Welfare

< Welfare arrangements should include toilets, washing facilities, changing rooms with clothes storage and eating facilities appropriate to the organisation and the nature of the workplaces. Welfare arrangements need to take account of personnel working remotely from the organisation's premises – refer to section E.2.1.1 Remote working . Project contracts should address welfare requirements – refer to section E.3.2 Stakeholder agreements.

E.2.4.6. Work absence and rehabilitation

< The implementation of an effective set of rehabilitation arrangements following work absence should enable the organisation to negotiate lower insurance premiums.

E.2.4.7. Post or role change

< The same processes need to be applied during the appointment of personnel from outside or inside of the organisation, as applicable. Personnel undergoing a post or role change should be subjected to the relevant aspects of section E.2.4 Employment life cycle.

Changing the post or role definition may have a significant impact on organisation performance and needs to be carefully planned and executed – refer to section E.9.4 Structure and process change.

E.2.4.8. Discipline

< It is important that arrangements are defined and implemented which are and are seen to be just. It is important that all staff are aware that violations of the organisation policy and management system are viewed as serious events leading to disciplinary action and where necessary discharge from the organisation. It is important that the disciplinary process is fully defined, made transparent to staff and is carefully followed during an event. If any doubts arise during the process expert advice should be sought as per section E.2.3 Provision of expert advice and assistance.

E.2.4.9. Leaving

< If a person is dismissed it is most important that the disciplinary process and legal requirements are followed. If any doubts arise during the process expert advice should be sought as per section E.2.3 Provision of expert advice and assistance.

Death in service during work time or related to work should be investigated to meet the legitimate needs of stakeholders as per section 0 Reactive investigation – Events.

There is a risk that a leaver will cause the organisation to lose tacit knowledge and it should therefore attempt to safeguard the continuity of the organisation's structures and processes. It should also capture valuable feedback during the leaving process and initiate improvement via review and change of relevant structures and processes – refer to sections 0 Review and Action and 0 Change. Where practicable structured exit interviews should be conducted by line managers.

E.2.5. Personnel Interactions

< Interactions between organisations should be effective and efficient.

Effective and efficient interaction may be enhanced through the adoption of conventions – refer to section E.4.4 Conventions.

E.2.5.1. Interfaces

< Where necessary, interface agreements may be used to formalise how two or more organisations should interface effectively and efficiently. This is potentially applicable to the main organisation and project organisations. It could be applicable to an organisation interacting with a parent organisation or licensing body or between diverse divisions within an organisation. It also includes authorities and special interest groups relevant to the organisation.

E.2.5.2. Communication, consultation, participation and reporting

< Effective two-way formal and informal communication and interaction is critical to organisation performance and needs to be directed and promoted internally and between external bodies and organisations.

Communication, consultation, participation and reporting should be suitable and sufficient to support the effective and efficient functioning of the organisation, satisfy stakeholder needs and expectations and be 'Clear, Concise, Concrete, Correct, Coherent, Complete and Courteous'.

The organisation should identify and classify its principal types of communication, consultation, participation and reporting structures and processes, who they are applied to, their principal purpose and their criticality to the organisation's performance. The organisation should plan who, how and within what timescales it will respond to relevant communication. In determining how it will communicate, consult, facilitate participation and report, the organisation should consider

- Methods, including verbal or written,
- Tools including internet, letter, video or report,
- Retain records as evidence.

Communication should be simple. Standardised communication may include the use of standardised protocols, language and terminology to reduce the risk of miscommunication – refer to E.4.4 Conventions. This typically includes confirmation of receipt and understanding of information. Understanding and retention of information and knowledge is enhanced by using more than one medium e.g. sound and vision, and also participation. This is important to education and training – refer to E.2.4.4.2 Competence development and assessment.

Non-disclosure agreements are commonly used to define communication restrictions.

Communication may be enhanced by the application of specific management tools and techniques - refer to section E.1.8 Management tools and techniques. These may typically include:

- 3d Graph
- Affinity Diagram
- Bar Chart
- Data Handling and Display
- Histogram
- Line Graph
- Matrix Data Analysis Chart
- Matrix Diagram
- Performance Indicators
- Profile Graphs

- Radar Chart
- RAG Status Report
- Tables
- Tree Diagram

A.1.1.1.1. Internal communication

< Organizational structure should be considered to ensure the most appropriate level and functions have a suitable and sufficient channel of communication which takes account of the assessed prospect and risk and potential for human error – refer to section E.1.6 Prospect and risk assessment. Communication with each person doing work may not be needed. A single approach to the whole organisation may be adequate to meet its communication objectives.

The organisation should ensure that it adequately responds to relevant internal communication including questions and enquiries related to any aspect of the organisation's performance which may include health and safety of personnel and the environment, goods and services quality or other significant performance issues.

Aides to communication may include colour coding, standardised signage using graphics and formal structured controls for sending, receiving and checking – refer to section E.4.4 Conventions.

A.1.1.1.2. External communication, consultation, participation and reporting

< External communication should meet the following criteria:

- Transparent so the organisation is open to the way it derived the information to meet the needs and expectations of relevant stakeholders needs and expectations, enabling them to fully participate in the communication,
- Truthful and not misleading,
- Factual, accurate and reliable ,ensured by robust systems and procedures,
- Complete in its own context and not exclude relevant information,
- Clearly understandable devoid of ambiguity.

The organisation should ensure that it adequately responds to relevant external communication including:

- Questions and enquiries related to environmental performance.
- External communication should demonstrate the organisation's knowledge and understanding of its compliance status.
- Stakeholder impacts may include health, safety, environmental, quality or other significant issues.

On discovery, on-going risk events should be reported immediately by phoning the relevant body's undesired events hotline as they may be able to mitigate the risk of the event via their contingency arrangements. An example of this would be the significant release of an undesirable substance into a watercourse or a major good defect requiring it to be recalled.

The organisation's staff responsible for external reporting should liaise with relevant internal staff including its expert advisers, as necessary.

Marketing is covered in section E.3.2 Marketing.

A.1.1.1.3. Whistleblowing

< Whistleblowing could be classed as a contingency arrangement as it serves no purpose when an organisation has an open questioning organisation culture and the normal communication processes providing personnel feedback are effective. It is when an organisation or a part of it becomes dysfunctional in some way and cannot be trusted that whistleblowing can help safeguard the legitimate needs and expectations of the organisation's stakeholders. Whistleblowing arrangements help balance stakeholder power within an organisation and prevent or reduce its abuse. It acts as a defence against self-serving behaviours of personnel seeking stakeholder win-lose outcomes rather than win-win outcomes.

Whistleblowing arrangements allow personnel to disclose observed or suspected wrongdoing in the workplace. A worker may report things that are not right, are illegal or if anyone at work is neglecting their duties, including:

- Someone's health or safety is in danger,
- Damage to the environment,
- A criminal offence,
- The organisation isn't obeying the law (e.g. not having the right insurance),
- Serious or persistent violations of the management system,
- Covering up wrongdoing.

A worker would normally whistleblow if they think their employer:

- Will cover it up,
- Would treat them unfairly if they complained,
- Has not sorted it out and they have already told them.

Personnel may whistle blow internally ideally to an independent designated person or to an external body supplying a professional service.

The legality of whistleblowing depends on the country where personnel are employed but an organisation should in any case provide whistleblowing arrangements compliant with this standard.

E.2.5.3. Management of conflict

< It is in all stakeholders' interests that any organisation activity does not continue if there are reasonable concerns that there is a perceived threat to stakeholder needs and expectations. This may include personnel safety, environmental harm or good or service quality leading to waste.

It is important that there is a system in place for identifying and resolving conflict that everyone understands is necessary and trusts. Personnel should not feel inhibited from taking reasonable actions that are in all stakeholders' interests.

Managers should first discuss concerns raised by personnel and attempt to resolve them seeking advice from senior managers and expert advisers, as necessary. If unable to resolve the matter, it should be referred up the line management chain for resolution. Work should only be recommenced when sufficient confidence has been established that the work method or site conditions are acceptable.

If personnel feel that the conflict resolution process has not been properly conducted in the interests of stakeholders, there may be legitimate grounds for whistleblowing as per section **Error! Reference source not found.** Whistleblowing.

See also section E.8.2.3 Intentionally halted processes.

If the event constitutes a near miss it should be recorded as per section 0 Reactive investigation and section E.9.2 Corrective and preventive action followed, if applicable.

E.3. Commerce

< Commerce is about trading with relevant stakeholders through the exchange of goods, services and financial payment.

This section covers the control of the maintenance of the organisation's existence as a trading entity (legal entity), the relationships with its internal and external stakeholders via contracts and interface agreements and finance. These three sub-elements control trading processes and the commercial performance of the organisation. Considerable risk is managed within this element of the MSS and should be addressed during planning – refer to section C.1 Assessment and Development of Controls.

The establishment and operation of commercial structures and processes should always prospect and risk assess the potential for fraud focusing on the conditions or potential events that indicate an incentive to commit fraud or the prospect of doing so – refer to section E.1.6 Prospect and risk assessment.

Commerce is important to all organisations as they are all involved in trading processes even if they are not a commercial business whose purpose is to make a profit.

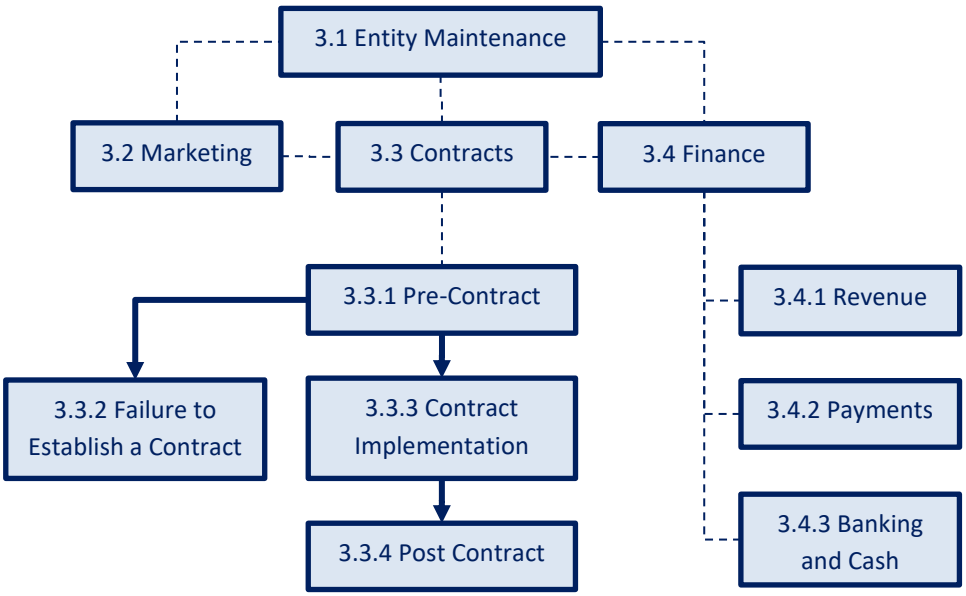


Figure 13: Commerce Subsections

E.3.1. Entity maintenance

< An organisation needs to establish, nurture and maintain itself as an appropriate entity to:

- Be recognized, trusted and able to interact with stakeholders,
- Trade with suppliers and customers,
- Satisfy legal and contractual obligations.

Typical requirements for an entity include:

- Registration as a company or other type of legal entity,

- Registration for paying taxes,
- Registration for activities conducted on behalf of employees,
- Membership of trade bodies,
- Registration with management system certification bodies,
- Supplier relationships,
- Customer relationships.

These relationships enable an organisation to trade with other organisations because it is recognised as a legitimate legal entity.

E.3.2. Marketing

< The purpose of marketing is to identify and anticipate customers and other stakeholder needs and expectations to enable the planning of the optimal delivery of the organisation's goods and services. If the organisation is a business, the principal objective is to be profitable, but in other types of organisations, the objective may be just to maintain financial viability.

Marketing plans may be integrated with the organisation's strategic plan or with a business plan – refer to section E.1.1 Foundation planning.

A marketing plan for a small organisation may typically include:

- Description of the good or service, including special features,
- Marketing budget, including the advertising and promotional plan,
- Description of the business location, including advantages and disadvantages for marketing,
- Pricing strategy,
- Market segmentation.

A marketing plan for a medium or large size organisation may typically include:

- Executive summary,
- Situational analysis,
- Opportunities and issue analysis – strengths, weaknesses, opportunities and threats analysis,
- Objectives,
- Marketing strategy,
- Action program for the operational marketing plan for the review period,
- Financial forecast,
- Controls.

Marketing materials data should comply with section E.4.2.7 Marketing materials and website.

Where applicable, the organisation should identify opportunities for prequalification to enable it to bid for contracts.

Marketing processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Boston grid
- Brainstorming
- Data handling and display
- Decision tree

- Focus groups
- Interviews
- Line graph
- Profile graphs
- Prospect assessment
- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk register/database
- Rag status reports
- Checklists
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis
- Visualization techniques

E.3.3. Contracts

< The primary purpose of contracts is to define equitable win-win agreements between stakeholders. The process leading up to a contract should involve an interaction between the relevant stakeholders so that the needs and expectations of each stakeholder are properly communicated to all parties to avoid costly misunderstandings after the contract has been enacted. The primary aim should be to achieve a good agreement for all stakeholders and not rely on post contract litigation as a means of protection and redress.

Typical contractual relationships include:

- Employer and employee,
- Main contractor and subcontractor,
- Supplier and customer,
- Partnership or joint venture.

Contracts may be implemented externally and internally and may have high associated risks that need to be assessed and appropriate action taken. The organisations principal operations fulfilling its purpose may involve low frequency high value contracts repeated within a set of generic arrangements or high frequency low value contracts each with bespoke management arrangements. Both types of contract delivery may have similar overall risks warranting an equivalent amount of management attention.

Approved document template(s) which have been reviewed by an appropriate expert should be used for contracts that are regularly enacted and facilitate compliance with the organisation's contract rules – refer to sections E.2.3 Provision of expert advice and assistance and E.4.1 Management system structure. Document templates are convenient receptacles for embedding rules into contracts.

Commercial contracts include small value high-frequency transactions as well as high-value low-frequency transactions and appropriate arrangements should be implemented for their management.

If bribery is detected or reported it should be treated as an event – refer to section 0 Reactive investigation. This may result in disciplinary action being taken as per section E.2.4.8. Discipline.

Contract planning and implementation processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Project profile model
- Prospect assessment
- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk register/database
- Rag status reports
- Ranking and rating
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Value analysis
- Visualization techniques

E.3.3.1. Pre-Contract

< The pre-contract arrangements may vary considerably depending on the size and type of organisation.

Major single contracts or the arrangements governing a high volume of contracts should be peer reviewed.

Organisations may cooperate in the delivery of a good or service via different relationships such as organisation and suppliers, principal contractor and sub-contractor or a joint venture etc.

Suppliers should be evaluated according to section E.6.1 Classification and vetting.

E.3.3.2. Failure to establish a contract

< It is important that the organisation attempts to determine the reasons for failing to establish a contract with customers or suppliers to determine how to be more successful in the future. It is good to maintain a standard form for guiding and recording the review process or the failure can be treated as an event – refer to section 0 Reactive investigation.

E.3.3.3. Contract implementation

< The time period, complexity and nature of the contract implementation will vary considerably depending on the size and type of the organisation.

Contract monitoring as per section 0 Reactive investigation and 0 Planned monitoring are necessary to determine when contractual obligations are triggered such as stage reports and payments as per sections E.3.4.1 Revenue and E.3.4.2 Payments to ensure that contracts are not violated and financial cash flow is controlled.

E.3.3.4. Post Contract

< Suppliers performance should be assessed as per section E.6.4 Performance evaluation.

E.3.4. Finance

< Prospect and risk assessment should be applied to all significant financial situations including the provision and receiving of loans as per section E.1.6.5 Prospect and risk improvement. Contingency arrangements should also be considered where appropriate such as insurance – refer to section 0 Contingencies.

Financial budgets should be prepared based on the agreed plans for the organisation and also for projects as part of management review and action processes – refer to section 0 Review and Action.

The organisation's financial reports should typically include:

- Profit and loss,
- Income and expenses,
- Balance sheet and net worth,
- Accounts overdue for payment,
- Budget spend,
- Cash flow,
- Finance available for shareholder dividend.

See also section E.4.3.1 Accounts.

Financial planning and control processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Cash flow analysis
- Prospect and/or risk register/database
- Rag status reports
- Tables
- Uncertainty analysis
- Value analysis

E.3.4.1. Revenue

< Arrangements should ensure that revenue from customers or other bodies is requested and received as soon as possible to reduce cash flow and the risk of payment defaulting. Overdue payment should be carefully monitored and reminders sent out followed by if necessary timely legal actions to recover the debt.

E.3.4.2. Payments

< Contractual data collection may include:

- Contract program implemented,
- Time sheets,
- Calculation of employee gross and net monthly salary,

Each time an item is purchased on behalf of the organisation a purchase order should be created to enable reconciliation of incoming invoices. Purchase Orders should typically include:

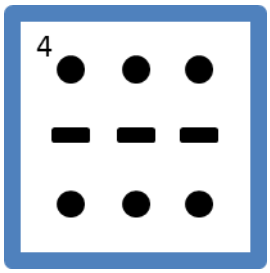
- Name of supplier
- Date of order
- Purchase order number
- Quantity
- Description of the goods or services being purchased
- Name of person placing the order.

E.3.4.3. Banking and cash

< Organisations should identify the need:

- For banking services to be supplied by approved suppliers – refer to section 0 Suppliers,
- To hold, handle and distribute cash, which should be minimised, where practicable – refer to sections 0 Normal Structures and Processes and 0 Contingency Structures and Processes.

E.4. Data



< Data is a valuable and critical organisation asset that interacts with people, commerce, matter and energy and suppliers within normal goods and services delivery processes and contingency processes. Data requirements cover its maintenance and processing including confidentiality, availability, integrity and availability.

Arrangements should cover the formal controls and guidance required to manage the lifecycle and evolution of data in all of its various forms. Document control is included in data control because it is a form of data. Sub elements include; data structures, control, databases, security and its processing. It should be noted that 'data processing' has 'accounting' as a sub-element, which in turn has different aspects of accounting as further sub-elements. There are many facets of accounting other than financial that need to be applied to processes and it makes sense to view accounting from a broad management perspective facilitating common methodologies e.g. databases and IT software – refer to section E.4.2.1 Databases. See also section E.5.4.3.4 Data equipment.

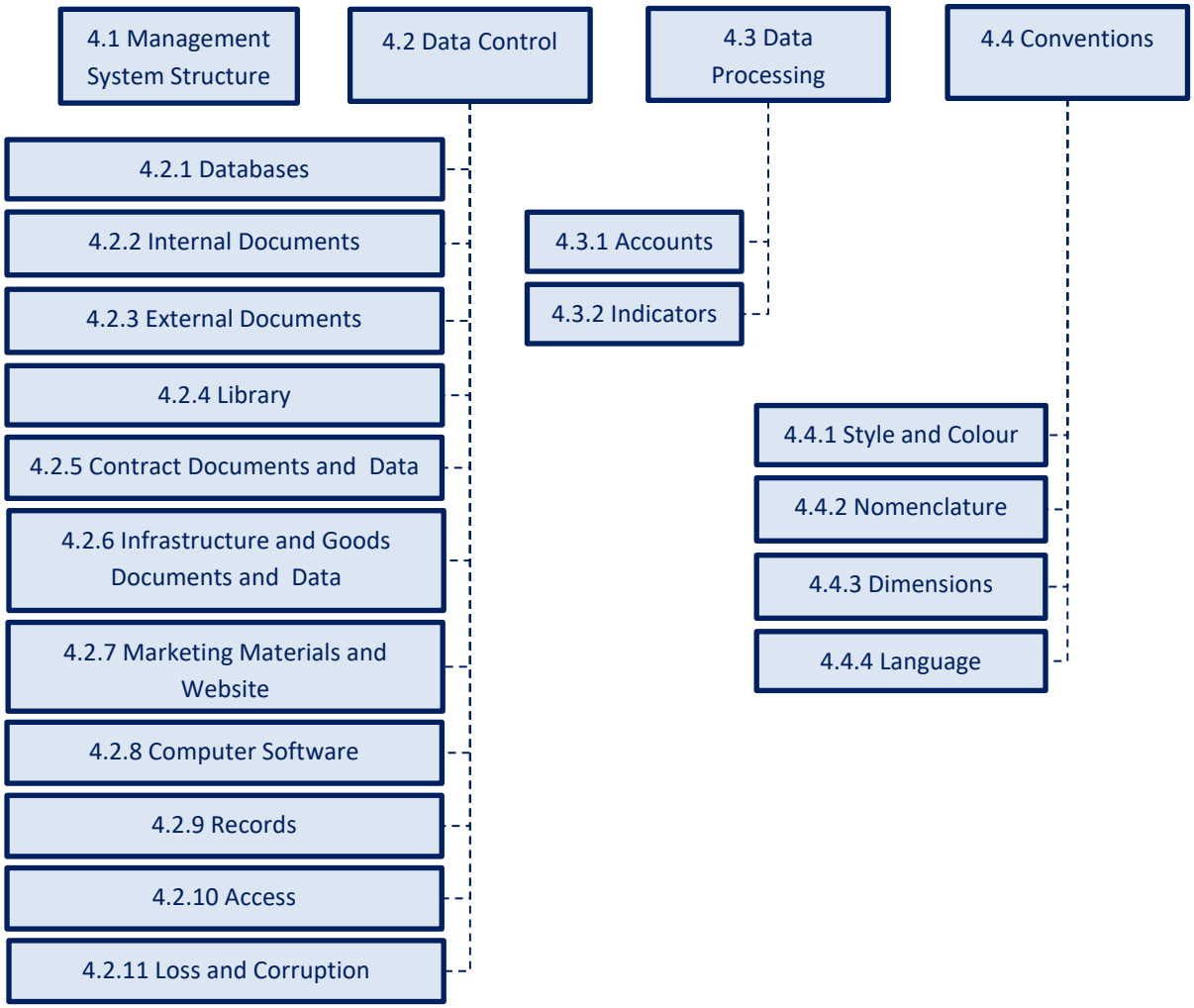


Figure 14: Data Subsections

E.4.1. Management system structure

< The elements of a documented management system should be chosen and structured to meet the needs of the organisation and its stakeholders. The management system document structure should ideally be functional, elegant and consider the planned or potential future needs to avoid costly major modifications and disruption to staff and operations during change or expansion.

The management system should be sufficiently documented to support the effective and efficient operation of the organisation to meet the stakeholders' needs and expectations. It must additionally permit the management system to be effectively and efficiently reviewed so that it may be changed to improve it or to remain aligned with stakeholder changing needs and expectations. The degree that a management system is documented will depend on its size, activities, structures, processes, goods and services, complexity, personnel competence and risks. Any risks associated with not documenting an aspect of the management system should be low.

The document types that may typically be used include:

- Management manual
- Policy statement
- Standard or regulation map
- Job description
- Management procedure
- Work instruction
- Document template
- Form
- Schedule
- Training module
- Handbook
- Contingency plan
- Process definition
- Interface agreement

Schedules typically include:

- Organisation cyclic events and interdependencies,
- Organisation objectives,
- Relevant legislation,
- Current personnel appointments,
- Identified competence types,
- Databases,
- Record types,
- Computer software,
- Externally controlled documents,
- Internally controlled documents,
- Internally controlled document identifiers,
- Filing codes and structures,
- Materials and energy types,
- Approved equipment types,
- Plant and equipment numbering conventions,
- Maintenance, inspection and testing,
- Approved suppliers,

- Principal core, supporting and contingency processes,
- Projects,
- Project documents,
- Change initiatives,
- Planned monitoring,
- Key performance indicators,
- Management meetings,
- Organisation and project progress and performance reports.

Documents should address the what, how, where, who, when and why with respect to the instruction and guidance of the organisation's processes appropriate to the type of document.

Checklists may be structured into appropriate documents as an aid to memory, help ensure compliance and to generate auditable records.

Responsibility and authority should relate to the post or role and not a named person as per section C.2.2 Responsibilities and authorities. A schedule should be maintained of current personnel appointments to posts and roles including their deputies, as applicable.

An instructive rather than a descriptive style produces more concise text and clearer communication. However, it is customary to write manuals and introductory or explanatory sections of documents in a descriptive style. An example of a descriptive style would be 'the personnel manager is responsible for maintaining accurate and current employment records' whereas an instructive style would be 'maintain accurate and current employment records' with a label that the instruction refers to the personnel manager.

The need for documents to be available at the point of the activity and if they should be followed step-by-step or just referenced as necessary will depend on the likelihood and consequence of errors being made.

A single overt integrated management system should be designed and implemented containing everything that can be allowed to be freely accessed by all personnel. Elements that need to be covert should be incorporated into one or more covert management systems as shown conceptually in Figure 15: Overt and Covert Management Systems.

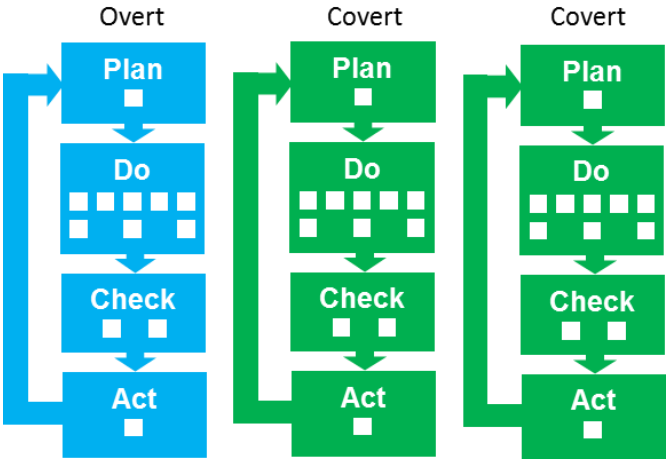


Figure 15: Overt and Covert Management Systems

Work instructions should include elements corresponding to Plan-Do-Check-Act such as prerequisites and preparation prior to performing the activity and required planned monitoring during and after the activity with required action if abnormalities occur.

The documented management system is a valuable receptacle of explicit knowledge – see also section E.2.4.4.1 Competence, education and training needs.

E.4.2. Data control

< The control of data, including documentation, is an essential element of a management system and the management system should define arrangements to control internally generated and externally received data that significantly impact the organisation's processes and stakeholder requirements to:

- Ensure that up to date information is available where it is required, superseded documentation is removed and orderliness is promoted,
- Ensure that it is adequately protected from loss or corruption or improper use,
- Provide an opportunity for regular reviews of documentation and data requirements,
- Ensure regulations, standards, codes of practice and customer specifications etc. are controlled in a systematic way,
- Ensure required data is preserved to meet regulatory, customer and other business needs,
- Information is restricted to those who are legitimately required to access it.

Data may be controlled in paper or electronic form but multiple accesses to controlled data are easier to control when in an electronic form. Equipment requirements for holding data are covered in sections E.5.4.3.4 Data equipment and E.5.4.3.5 Mobile plant and equipment.

Where appropriate, satellite data control centres should be established meeting the same standards as the primary data control centre.

See also E.9.6 Management system change.

E.4.2.1. Databases

< Prospect and risk assessment should be conducted to determine the degree that databases should be integrated as per section E.1.6 Prospect and risk assessment. Being able to interrogate data as a single entity is more efficient however; security issues may outweigh any perceived benefits of integration.

Databases may be used to manage compliance with this MSS and where practicable it should ideally be fully integrated and meet the needs of all of the organisation's staff operating throughout the organisation at all levels. Additionally it may also be extended to meet the needs of specific stakeholders working closely with the organisation.

Databases perform an important role in establishing inventories – refer to section E.1.1 Foundation planning.

E.4.2.2. Internal documents

< The objective of internal document control is to ensure that current approved documents are readily available to all those who require them where it is needed.

Work instructions may specify good or service characteristics to satisfy requirements and are often contained in drawings, specifications, schedules, orders, patient prescription, etc. The level of detail may need to be increased for tasks performed by personnel of a lower competence, as appropriate. – refer to section E.2.4.4 Competence.

E.4.2.3. External documents

< The objective of external document control is to ensure that current approved documents are readily available to all those who require them where it is needed. It covers the receipt of documents from a document controller external to the organisation and then controlling them as if they were internal documents.

E.4.2.4. Library

< Libraries may be physical and/or electronic and contain internal and external documents – refer to sections E.4.2.2 Internal documents and E.4.2.3 External documents.

E.4.2.5. Contract documents and data

< Contract documents should be held in an orderly system to aid retrieval and the understanding of the progress of commercial agreements and their implementation.

E.4.2.6. Infrastructure and goods documentation and data

< Infrastructure and goods data typically includes data, health and safety files, operation manuals and maintenance manuals etc. Where the organisation is the infrastructure owner or is responsible for its systems these documents need to be kept up to date with modifications or newly acquired or created goods so that personnel are always accessing current and correct data.

E.4.2.7. Marketing materials and website

< Marketing materials include anything that is created to communicate with potential customers or stakeholders.

E.4.2.8. Computer software

< The organisation should make appropriate use of proprietary or bespoke computer software to enhance the management of its structures and processes based on prospect and risk assessment – refer to section E.1.6 Prospect and risk assessment . Types of functionality (including associated databases) that may typically be supported by separate or integrated computer software packages include:

1. Assessment and development of management control including:
   - Management of legislative requirements,
   - Prospect and risk assessment,
   - Management tools and techniques.
2. Personnel data processing, reporting and records including:
   - Organisation data,
   - Employment life cycle data,
   - Competence data.
3. Commercial data processing, reporting and records including:
   - Legal entity maintenance,
   - Marketing,
   - Contracts,
   - Finance.
4. Data acquisition, control and processing.
5. Matter and energy tracking and records.
6. Suppliers management and records.
7. Normal structures and normal processes management and records.

8. Contingency structures and processes management and records.
9. Change life cycle management and records.
10. Reactive investigation management, reporting and records.
11. Planned monitoring management, reporting and records.
12. Management of review processes and actions management.

Computer system software should:

- Be fit for purpose and meet the needs of the organisation,
- Provide suitable and sufficiently simple user interfaces,
- Allow for disabilities such as colour blindness etc.,
- Allow data to be readily exchanged with other systems, as required,
- Provide customisable reports,
- Address security needs such as access, unauthorised use and change control.

E.4.2.9. Records

< Records should typically include anything required to effectively and efficiently:

- Demonstrate compliance with legislation, adopted standards (MSS), and contracts,
- Support the operation of the organisation or a project and facilitate trading,
- Prosecute or defend a civil or criminal prosecution,
- Reactively investigate events,
- Conduct planned monitoring,
- Review performance and take action to improve and remain aligned with stakeholders needs and expectations,
- Demonstrate the value of the organisation.

Organisations may decide to retain all records indefinitely in electronic form for ease of management. Stakeholder requirements may require records to be destroyed after a specific period.

Record retention and corruption should address loss through such threats as human error and violation, theft, fire, flood, adverse weather, vermin, media ageing and degradation. High value records should be protected by defense in depth controls.

E.4.2.10. Access

< Non-disclosure requirements should not negatively impact the legitimate needs and expectations of stakeholders to access data relating to them to confirm that it is factual.

Physical security of records is covered in section E.5.4.5 Access, egress and protective barriers.

E.4.2.11. Loss and corruption

< The robust arrangements for preventing the accidental loss or theft of data should employ regular backups of data stored remotely from the normal data location and secured against common mode failure – refer to section E.1.6 Prospect and risk assessment. Physical barriers of protection should be managed as per section E.5.4.5 Access, egress and protective barriers.

E.4.3. Data Processing

< The data task schedule complements the maintenance, inspection and test schedule covered in section E.5.5 Maintenance, inspection and testing and may be integrated.

Data processing may be aided by the application of specific management tools and techniques - refer to section E.1.8 Management tools and techniques. These may typically include:

- 3d Graphs
- Affinity Diagram
- Bar Chart
- Cash Flow Analysis
- Cause and Effect Analysis
- Concentration Diagrams
- Data Handling and Display
- Gap Analysis
- Histograms
- Line Graph
- Matrix Data Analysis Chart
- Matrix Diagram
- Pareto Analysis
- Pareto Charts
- Performance Indicator
- Profile Graphs
- Radar Chart
- RAG Status Report
- Sensitivity Analysis
- Tables
- Tree Diagram
- Uncertainty Analysis

E.4.3.1. Accounts

< The organisation should manage financial and other types of capital accounting such as energy, carbon, materials, personnel working time and exposure to vibration, noise, ionising radiations etc. See also E.3.4 Finance.

The accounting database(s) configuration should include:

- Setting up access permissions,
- Authorisation limits,
- Business stream classifications etc. to aid activity based accounting,
- Tax levels,
- Standard reports.

E.4.3.2. Indicators

< Indicators should be selected to measure the achievement of objectives. The organisation should consider indicators related to the elements of its management system. In addition the organisation may consider indicators that provide information about the condition of its immediate and wider environments that may be impacted by the organisation or the organisation may impact.

Indicators should include suitable and sufficient lagging indicators, coincident indicators and leading indicators to aid the effective and efficient management of the organisation and projects.

The use of prospect and risk indicators many also be considered to indicate the likelihood of future beneficial or adverse impacts.

Indicators are often referred to as a management tool and are listed in Appendix 4: Management Tools and Techniques and include:

- Indicator
- Key performance indicator
- Prospect Indicator
- Risk Indicator

Ideally performance indicators should be arranged into a hierarchical data structure with multiple layers providing data applicable to different parts or aspects of the organisation relevant to various levels of management. An indicator at any level is determined from the indicators at a lower level unless at the atomic level. Top management should be able to observe overall performance through the indicators at the top of the hierarchy referred to as key performance indicators. They can then drill down into the data structure to find more detail if they wish. A list of typical key performance indicators is provided in Appendix 7: Typical Key Performance Indicators.

The selection and structure of indicators is also critically important to assist in understanding and assessing the performance of an organisation's aspects related to potential low frequency high impact events. This necessitates the use of indirect indicators that need to be collectively monitored to act as an early warning regarding weaknesses in defences guarding against major events – refer to section 0 Planned Monitoring.

The large volume and complexity of organisation performance drivers should caution against placing too much confidence in an incomplete set of indicators.

E.4.4. Conventions

< As appropriate, organisations should align their conventions with international or national standards – refer to section E.1.5 Legislation and standards.

Conventions help create orderliness leading to improved human effectiveness and efficiency. Reduction in human error improves effectiveness. Conventions are typically applied to:

- E.4.4.1 Style and colour,
- E.4.4.2 Nomenclature,
- E.4.4.3 Dimensions,
- E.4.4.4 Language.

The classification of structure and process to create simplification may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Fishbone Diagram
- Flow Chart
- Heat Maps

- Infrastructure Tour
- Prioritization Matrix
- Process Flow Charts
- RAG Status Reports
- Stakeholder Analysis
- Stakeholder Engagement Matrices
- Tables

E.4.4.1. Style and colour

< Defining style helps to project the brand(s) of the organisation and aid communication e.g. colour coded communication – see section E.2.5.2 Communication consultation, participation and reporting and **Error! Reference source not found.** Structure and process design.

Signage being used as a management control should also follow these principles and, as applicable, follow national and global conventions. See section E.1.6.5 Prospect and risk improvement.

E.4.4.2. Nomenclature

< Defining clear logical nomenclature aids communication and helps to reduce the likelihood of human errors – see section E.2.5.2 Communication, consultation, participation and reporting and **Error! Reference source not found.** Structure and process design.

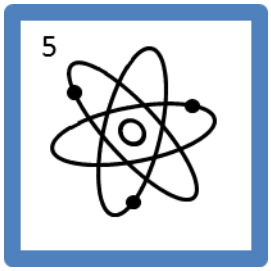
E.4.4.3. Dimensions

< Dimension systems should wherever practicable be standardised and match competences – refer to section E.2.4.4 Competence and E.7.1.7 Measurement and testing.

E.4.4.4. Language

< Language should wherever practicable be standardised while meeting the needs of stakeholders and match competences – refer to section E.2.4.4 Competence and **Error! Reference source not found.** Structure and process design.

E.5. Matter and Energy



< Matter and energy includes everything that is naturally created including biological or man-made, including energy, except where it is already addressed by the other elements such as 'people' in section 0 Personnel.

Einstein's equation E=MC2 justifies this natural element grouping. Sub-elements cover the lifecycle management of materials, goods and infrastructure.

Critical process steps are often defined in (safe) systems of work and failure can account for major organisation losses, for example, the UK Piper Alpha oil platform disaster in the North Sea in 1988 killing 167 people.

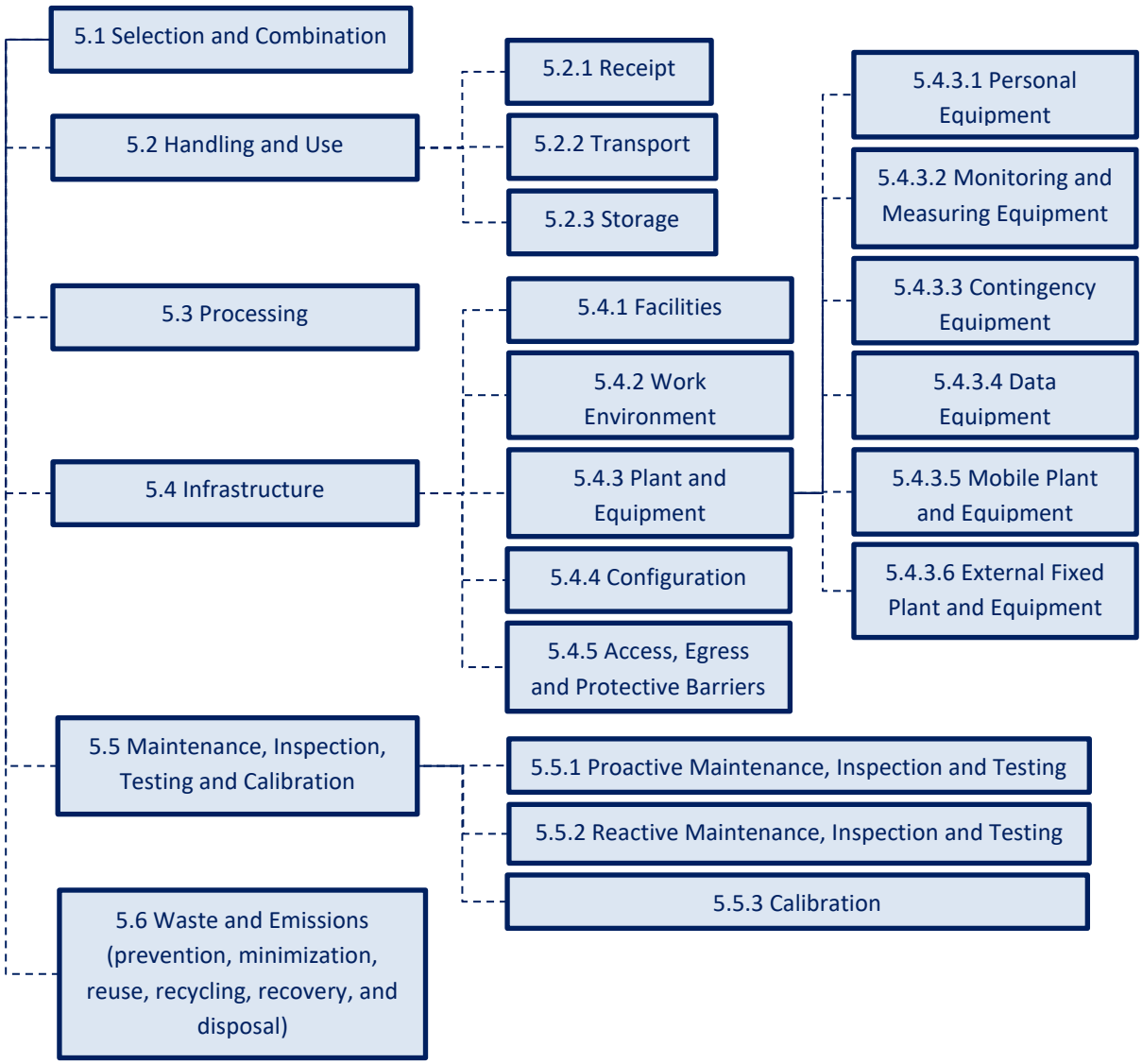


Figure 16: Matter and Energy Subsections

E.5.1. Selection and combination

< Materials and energy have the potential to satisfy but also negatively impact stakeholder needs and expectations. The organisation should follow the arrangements of section E.1 Assessment and Development of Controls. The interactions of matter and energy are as important as their individual characteristics. Selection and combination of materials and energy covers the complete life cycle of structures and processes including materials and energy created by processes – refer to sections E.5.3 Processing and E.7.1 Structure and process design.

Hazards associated with materials and energy and their combination may impact people, the environment and other physical stakeholder assets and typically includes causing harm via:

- Ingestion, injection, inhalation,
- Fire or explosion,
- Hot or cold,
- Radiation emission,
- Direct physical damage through shape, mass or volume,
- Interruption of a process e.g. asphyxiation, drowning, machine malfunction,
- Degradation of physical quality e.g. efficacy, colour, texture, reliability, life etc.

E.5.2. Handling and use

< The organisation should define arrangements for the safe, effective and efficient use of matter and energy including:

- E.5.2.1 Receipt,
- E.5.2.2 Transport,
- E.5.2.3 Storage.

E.5.2.1. Receipt

< Purchase delivery reconciliation may be between a purchase order, invoice and delivery note and materials received etc., as applicable.

E.5.2.2. Transport

< Transport of matter and energy should be managed to optimally satisfy the organisation's, customers and other stakeholder's needs and expectations while safeguarding personnel and the environment and making the best use of resources – refer to E.1.6 Prospect and risk assessment.

As applicable, approved suppliers should be used – refer to section 0 Suppliers.

E.5.2.3. Storage

< Energy and matter should be stored safely with respect to personnel and the environment and its integrity assured according to planned arrangements – refer to E.1.6 Prospect and risk assessment.

E.5.3. Processing

< The processing of energy and matter should be managed safely, effectively and efficiently to optimally satisfy customers and other stakeholder needs and expectations, and make the best use of resources – refer to E.1.6 Prospect and risk assessment.

The types and forms of matter and energy output from processes may significantly differ from the process inputs and should be carefully selected – refer to section E.5.1 Selection and combination.

Processes may be endothermic (absorbing energy) and exothermic (emitting energy). The organisation should endeavour to optimize the minimization of its overall energy usage.

E.5.4. Infrastructure

< The organisation should define arrangements for safely, effectively and efficiently managing its own infrastructure and any other infrastructure that it is responsible for and address:

- E.5.4.1 Facilities,
- E.5.4.2 Work environment,
- E.5.4.3 Plant and equipment.

E.5.4.1. Facilities

< Where the organisation is responsible for managing facilities it should ensure that they are safe, fit for purpose and legally compliant based on appropriate prospect and risk assessment as per section E.1.6 Prospect and risk assessment.

Where an organisation is leasing facilities it should ensure that the property owner is fulfilling its duties by conducting suitable monitoring – refer to sections 0 Suppliers and 0 Planned Monitoring.

E.5.4.2. Work environment

< The work environment parameters typically include temperature, humidity and air quality as well as ergonomic, social, psychological and environmental aspects.

Segregation of workplace environment may be necessary to ensure independence and integrity of processes such as design, development, testing, and operations etc. and to reduce the likelihood of unauthorized access and to aid local environmental control.

As well as a general workplace risk assessment, a personnel stress assessment should be conducted to identify and assess potential stressors as per section E.1.6.5 Prospect and risk improvement. Personnel stress can be extremely debilitating and can impact all aspects of an organisation's performance.

See also E.2.1.1 Remote working.

E.5.4.3. Plant and equipment

< Plant and equipment should be operated and maintained according to its manufacturer's instructions by competent persons.

Measuring equipment may be calibrated prior to use or pre-calibrated – refer to section E.5.5.3 Calibration.

Management arrangements should be defined for special types of equipment, which may include:

- D Personal equipment,
- E.5.4.3.2 Monitoring and measuring equipment,
- E.5.4.3.3 Contingency equipment,

- E.5.4.3.4 Data equipment,
- E.5.4.3.5 Mobile plant and equipment.

An item of plant or equipment may be applicable to one or more of the above special types of equipment.

E.5.4.3.1. Personal equipment

< Personal equipment includes personal protective equipment (PPE) and personal respiratory equipment (PRE) which should be procured and managed to ensure they are fit for purpose.

E.5.4.3.2. Monitoring and measuring equipment

< Monitoring and measurement equipment can be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards – refer to section E.5.5.3 Calibration.

E.5.4.3.3. Contingency equipment

< The organisation should ensure that it has suitable and sufficient equipment to support its contingency arrangements and that it is readily available for use when required – refer to section E.8.2.2 Emergencies, Crises and Disaster Recovery.

E.5.4.3.4. Data equipment

< Controls should be implemented to ensure that data is effectively and efficiently stored and processed, as necessary while maintaining confidentiality, availability, integrity and availability. Unauthorized disclosure, modification, removal or destruction of data should also be prevented.

Equipment containing or having the potential to contain data should be controlled, as appropriate, over its complete life cycle to ensure the effective and efficient management of data covered in section 0 Data. This may include various types of fixed and portable data media requiring specific management controls to ensure the effective and efficient maintenance and processing data embracing confidentiality, availability and integrity. This is facilitated by the classification of equipment according to its potential to impact stakeholder prospects and risks based on their needs and expectations – refer to section E.1.1 Foundation planning.

Portable data media with the potential to significantly impact stakeholder needs and expectations should be avoided wherever possible as establishing effective and efficient control is more difficult than with fixed media.

E.5.4.3.5. Mobile plant and equipment

< Mobile plant and equipment should be subject to additional controls because of the varying environments in which may be transported, stored, operated and interfaced with other plant and equipment. It is also potentially subject to greater unauthorised interference that may harm personnel (including children), the environment and the plant or equipment.

E.5.4.3.6. External fixed plant and equipment

< Fixed plant and equipment external to a facility may include services such as water, gas, power and telecommunications supporting facilities. Arrangements should be put in place to operate, maintain

and secure these services from interference and damage. Data transmission services should additionally be protected from interception.

E.5.4.4. Configuration

< The way that the parts of a structure are configured generally impact its functionality and its ability to fulfil its intended purpose or purposes and when incorrectly configured may even cause significant harm. Organisations should therefore determine the prospect and risk associated with the potential configurations of structures as per section E.1.6 Prospect and risk assessment. It is often necessary for structure to be configured in multiple ways to facilitate its manufacture, construction, commissioning, operation, testing, inspection, maintenance and decommissioning etc.

Common examples of the need for configuration management occur in structures associated with manufacture, transport, power distribution, process plant and computer systems. The ability to configure a system in multiple ways is often a design feature to improve its performance by increasing availability and reducing risk of failures. However, some configurations must be prohibited when the prospect and risk assessment indicates that they increase the risk of harm occurring. Undesired configurations should ideally be prohibited from occurring via engineered controls and otherwise administrative controls.

The required status of a particular desired configuration should be confirmed by appropriate verification and validation processes e.g. confirming the status of an aircraft prior to take-off. An example of a configuration status management system for safety critical plant systems in shown in Figure 17: Configuration Status Example. The status of any item of plant changes depending on whether it is available and proven for service, is defective, undergoing routine checking and testing, is defective, planned for or undergoing breakdown or planned maintenance, isolated and under the control of the permit for work system etc. The configuration and status of the plant impacts the organisation's ability and potential to deliver it's purpose at a particular time and to demonstrate compliance with customer and stakeholder requirements as well as managing an effective unplanned and planned maintenance, inspection and test program – refer to sections C Specific Requirements Guidance and C.5.5 Maintenance, inspection, testing and calibration.

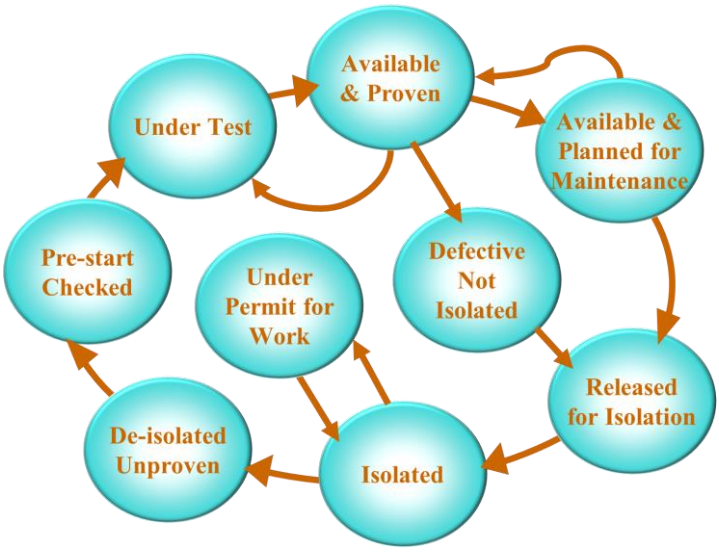


Figure 17: Configuration Status Example

Configuration management is often complex enough to require computer software to manage it to optimise the availability of the system while retaining risks within specified limits.

Configuration management is often a key part of a formally defined system of work – refer to section E.7.1.4 Significant prospect and risk systems of work.

E.5.4.5. Access, egress and protective barriers

< Access and egress should take account of physical barriers, working at height and confined spaces.

Multiple diverse barriers may be used to reduce risk employing defense in depth – refer to E.1.6.5 Prospect and risk improvement.

Physical barriers acting as a material containment should be designed such that if degradation occurs they ideally initially leak rather than fail catastrophically.

See also section E.5.4.2 Work environment.

E.5.5. Maintenance, inspection, testing and calibration

< The organisation should maintain formal arrangements for managing:

- E.5.5.1 Proactive maintenance, inspection and testing,
- E.5.5.2 Reactive maintenance, inspection and testing,
- E.5.5.3 Calibration.

The management of maintenance, inspection, testing and calibration should be informed or directed by:

- Manufacturer's information, recommendation and expert advice,
- Legislation, regulatory and standards requirements – refer to section E.1.5 Legislation and standards,
- Performance justification – refer to section E.1.7 Performance justification,
- Reactive event investigation experience – refer to section 0 Reactive Investigation,
- Planned monitoring experience – refer to section 0 Planned Monitoring,
- Management review – refer to section 0 Review and Action.

Where practicable invasive maintenance should be avoided by using non-invasive condition monitoring.

The management of maintenance, inspection, testing and calibration and the retaining of records may be enhanced by using a computer software database – refer to section E.4.2.1 Databases.

E.5.5.1. Proactive maintenance, inspection and testing

< Proactive maintenance should be managed to ideally ensure that infrastructure is continuously available to meet planned operational requirements and minimize the need for reactive maintenance, inspection and testing – refer to section E.5.5.2 Reactive maintenance, inspection and testing.

Any outsourced work or services should be carried out by approved suppliers – refer to section 0 Suppliers.

E.5.5.2. Reactive maintenance, inspection and testing

< The organisation should have its own or accessible arrangements for reasonably foreseeable potential requirements for reactive maintenance, inspection and testing informed by prospect and risk assessment – refer to section E.1.6 Prospect and risk assessment.

E.5.5.3. Calibration

< The organisation should define arrangements for ensuring that measuring equipment is suitably calibrated for it's purpose, either routinely or prior to its use.

E.5.6. Waste and emissions and emissions

< The organisation should minimize the creation of waste and emissions and their impact on personnel and environmental safety and health, as well as stakeholder needs and expectations, while making the best use of resources. This should be achieved through the design and operation of effective and efficient structures and processes – refer to section E.7.1 Structure and process design and development. The following waste controls hierarchy should be applied and is listed in order of preference:

- Waste prevention and minimization,
- Waste reuse,
- Waste recycling,
- Waste energy recovery,
- Waste disposal.

The aim of the waste controls hierarchy is to extract the maximum practical benefits from goods and to generate the minimum amount of waste. The proper application of a waste controls hierarchy helps to prevent emissions of greenhouse gases, reduces pollutants, saves energy, conserves resources, create jobs and stimulate the development of green technologies.

Overall, attempts should be made to optimise the total life cycle of the structures and processes and may under certain circumstances necessitate a departure from the waste controls hierarchy e.g. when a balance has to be made between energy use and waste production and its processing.

Waste prevention and minimization

Prevention or reduction minimizes the generation of waste products in the first place. Prevention usually results in the least environmental and economic life cycle costs because it requires no collecting or processing of materials. It involves using less material in design and manufacture, trying to keep goods for longer, and using less hazardous materials.

Waste reuse

Waste reuse is any operation where goods or materials that are not waste are used again for the same purpose for which they were intended. Reusing waste often requires collection but relatively little or no processing. It involves checking, cleaning, repairing, and/or refurbishing, entire items or spare parts.

Waste recycling

Recycling of waste is any activity that includes the collection of used, reused, or unused items that would otherwise be considered waste. Recycling involves sorting and processing the recyclable products into raw material and then remanufacturing the recycled raw materials into new goods.

Waste recovery

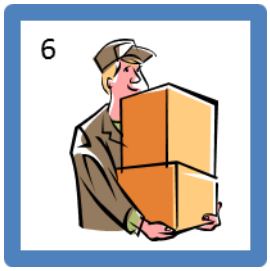
The recovery of waste covers materials recovery and of energy recovery. The one that is better for the environment and human health is preferred. The recovery of materials involves activities such as recycling and composting. The recovery of energy, such as incineration, is usually the less preferred option. The conversion of non-recyclable waste materials into usable heat, electricity, or fuel is done through a variety of processes, including anaerobic digestion, gasification, and pyrolysis.

Waste disposal

Waste disposal is the final least preferred option. Disposal is any operation that involves the dumping and incineration of waste without energy recovery. Before final disposal, a considerable amount of pre-treatment may be necessary to change the characteristics of the waste to reduce the quantity or harmfulness of the waste and that may include physical, thermal, chemical, or biological processes. Landfills are the most common form of waste disposal and the final disposal option.

Disposal of waste containing data must be carefully controlled according to its classification – refer to section E.1.6.2 Classification of structures and processes.

E.6. Suppliers



< This section covers the life cycle management of suppliers from initial approval, taking a prospect and risk informed approach, through to performance evaluation and grading including:

E.6.1 Classification, vetting and control,
E.6.2 Specification and ordering,
E.6.3 Receipt,
E.6.4 Performance evaluation.

The goal of supplier and supply chain management is to ensure that outsourcing adds value and equivalent standards are achieved to those conducted within the organisation.

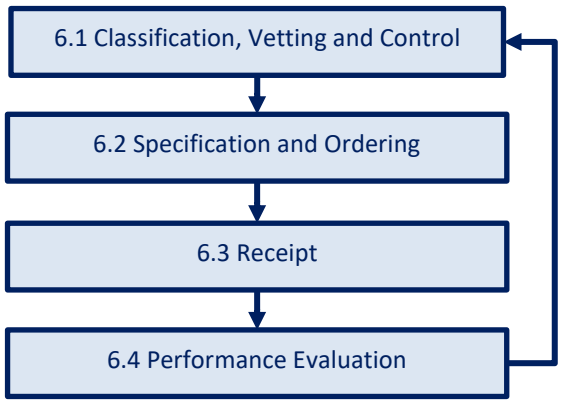


Figure 18: Suppliers Subsections

E.6.1. Classification, vetting and control

< Smaller organisations may only need to be concerned with external suppliers but organizational units within larger organisations should identify significant internal suppliers existing within the organisation as a whole or a parent organisation to ensure effective management control.

An example of a supplier classification system is shown in Appendix 5.1 Classification of Suppliers Example. Provision may be made for recording the classification in the financial accounting software databases. This makes the data conveniently available when commercial transactions are being considered. See also to section E.6.1 Classification, vetting and control.

Questionnaires are common instruments used to obtain data from an organisation in a structured way but data can be assembled and evaluated from any reliable source. Organisations should verify data where there is a credible possibility of it being false where the supplier is critical to the organisation's operations and reputation.

External audit (second party) and/or inspection covered in sections E.11.3 External audit and E.11.5 Inspection can provide considerable information and knowledge about suppliers operations which cannot easily be obtained by other means and can also help establish a valuable interactive relationship assisting both parties.

Overall the objective should be by one or more means to achieve an appropriate level of confidence that the supplier is capable of delivering goods and/or services compliant with the organisation's policy and objectives – refer to sections E.1.3 Policy statement and E.1.4 Objectives. What is necessary to achieve the required level of confidence for one good or service may not be the same for a different good or service.

Supplier classification, vetting and control processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Rag status reports
- Surveys
- Tables
- Tree diagram

E.6.2. Specification and ordering

< Specification and ordering structures and processes should ensure that requirements are fully assessed, comply with policy and objectives and are appropriately approved.

E.6.3. Receipt

< Received goods may include energy, matter, data or a combination.

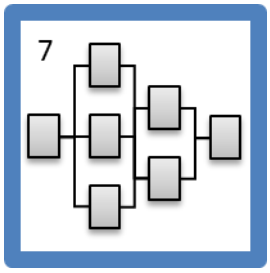
The organisation should establish practicable arrangements for verifying that received goods reconcile with the order specification and that the delivery is complete and in a satisfactory condition.

E.6.4. Performance evaluation

< The organisation should establish formal arrangements for compiling supplier performance and evaluating it to act as an informed basis for possibly reusing the supplier in the future for a specific purpose. A supplier may be deemed satisfactory for one purpose but not another.

An example of a supplier performance evaluation grading system is shown in Appendix 5.2 Supplier Performance Grades Example. Provision can be made for recording the grades in the financial accounting software database. This makes the data conveniently available when commercial transactions are being considered.

E.7. Normal Structures and Processes



< Organisation's and projects should focus their primary attention on the effectiveness and efficiency of its structures and processes to fully fulfil its purpose and equitably satisfy the needs and expectations of the customer and other stakeholder needs and expectations while making the best use of resources.

Normal structures and associated normal processes cover all of the organisation's structures and processes (including goods and services) that are intended to deliver value internally and externally including projects directly or indirectly fulfilling the purpose of the organisation except contingency processes covered separately in section 0 Contingencies.

It covers the intelligent, creative and innovative integration of the following five elements to providing value to customers and other stakeholders aligning with the organisation's purpose:

- 0 Personnel
- 0 Commerce
- 0 Data
- 0 Matter and Energy
- 0 Suppliers

This section covers what is delivered and the process of its delivery that may impact stakeholder needs and expectations differently. Stakeholders may be impacted by structures and the conduct of processes including the inputs and outputs according to their respective needs and expectations – refer to section E.1.1 Foundation planning.

Within the collective structure of the organisation and its suppliers, processes transform inputs into outputs via series and parallel sub-processes shown conceptually in Figure 19: Normal Processes.

The management system may define generic and/or specific process constraints to direct and guide processes. The constraints may precisely define the process or define an envelope forming a boundary that processes must not transgress. Constraints are defined within appropriate management system documents as per section E.4.1 Management system structure.

They may include core, supporting and contingency processes. Because of their different nature, contingency processes are covered separately in section 0 Contingencies.

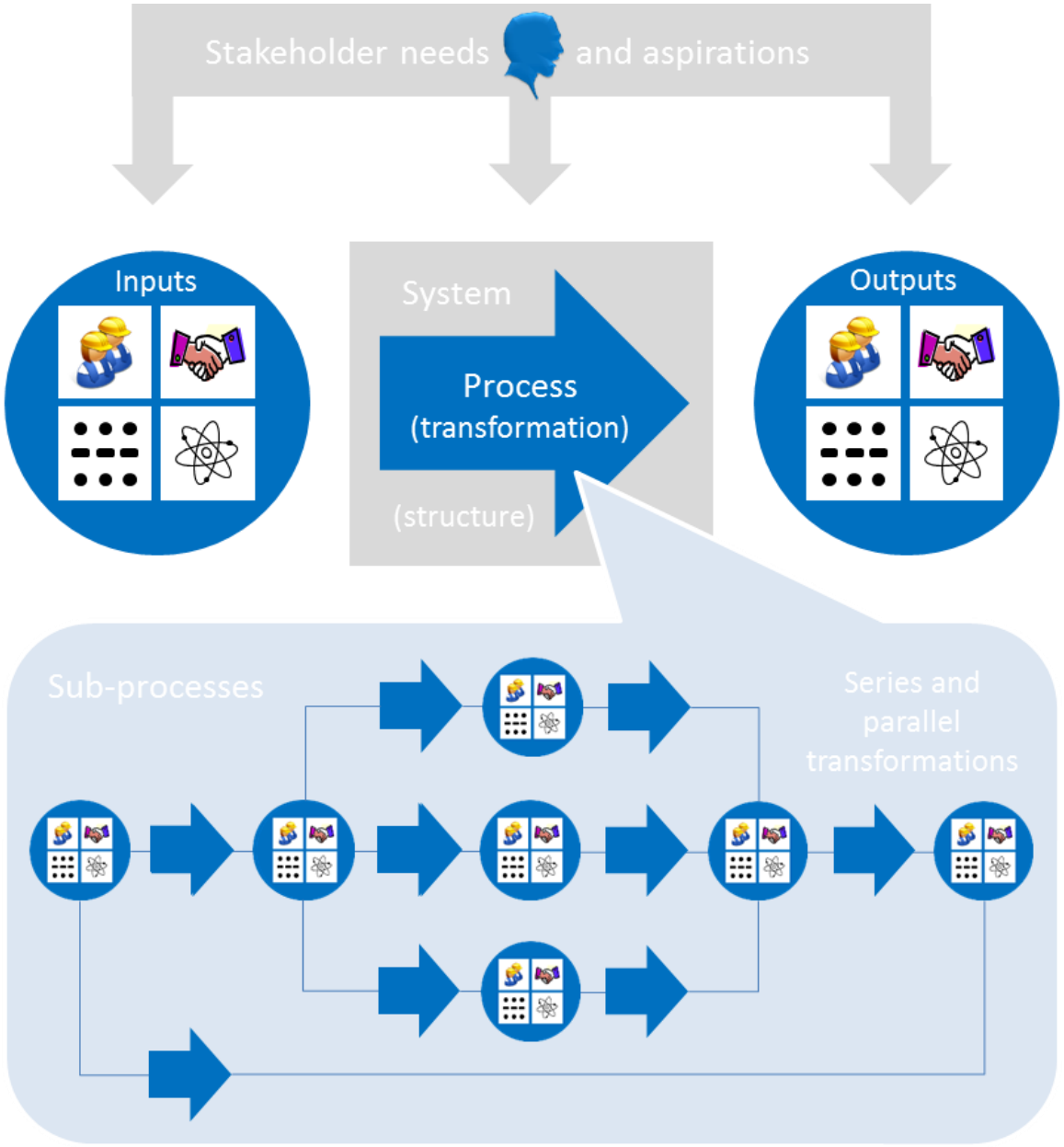


Figure 19: Normal Processes

Goods and services are principally delivered through the combination of:

E.1 Assessment and Development of Controls,
0 Personnel,
0 Commerce,
0 Data,
0 Matter and Energy,
0 Suppliers.

Core processes typically cover:

- Sales and marketing,
- Establishing orders and contracts,
- Fulfilling orders and contracts,

- Processing payment for goods and services.

Supporting processes typically cover:

- Maintaining the organisation as an entity,
- Recruitment and maintenance of competent personnel,
- Paying salaries and other obligations,
- Infrastructure management,
- Archiving of records.

Good lean design of structures and processes and their overall harmonious integration should promote the effective and efficient operation of the organisation.

The organisation may make use of expert advisers, other organisations and approved suppliers to design, establish, operate, maintain, modify, decommission and dismantle structures and processes.

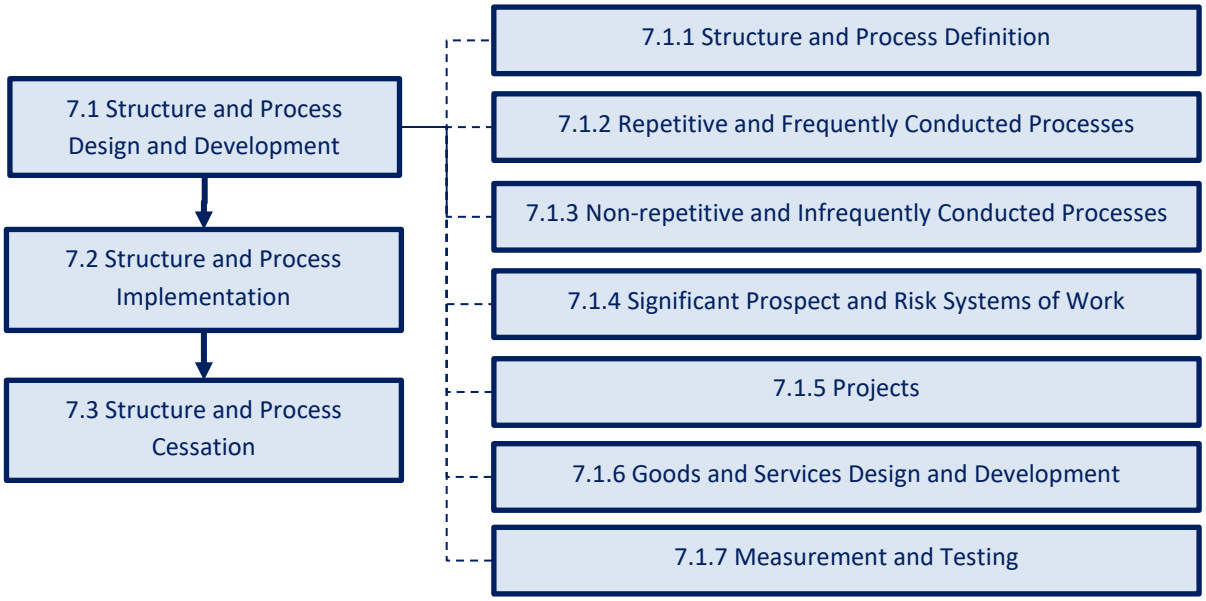


Figure 20: Normal Structures and Processes Subsections

E.7.1. Structure and process design and development

< Diagrammatic representation of structures and processes and their interactions is typically used to aid communication and understanding of how processes interact and are dependent on each other.

Personnel involvement in the design of structures and processes should take place as per section 0 Internal communication, consultation, participation and reporting.

Personnel competence, fitness and stress are very important aspects that impact personnel and process performance and should be taken account of in process design – refer to section E.2.4.4.4 Fitness.

The adoption of clear and logical conventions can simplify operation and maintenance and reduce the likelihood of human error – refer to section E.4.4 Conventions.

The control of repetitive processes may be aided by using statistical process control.

Anti-corruption measures should form part of structure and process design – refer to section E.7.1 Structure and process design.

The design and development of structures and processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Activity network (critical path)
- Brainstorming
- Cause and effect analysis
- Concentration diagrams
- Control charts
- Cost benefit analysis
- Critical path analysis
- Data handling and display
- Decision tree
- Design of experiments
- Failure mode and effects analysis
- Failure prevention analysis
- Flow chart
- Gantt chart
- Hierarchical task analysis
- How-how diagrams
- Infrastructure tour
- Icam-definition
- Interviews
- Latin hypercube
- Line graph
- Linear programming
- Matrix data analysis chart
- Matrix diagram
- Monti carlo analysis
- Nominal group technique
- Pareto analysis
- Pareto charts
- Portfolio analysis
- Prioritization matrix
- Process capability
- Process decision program chart
- Process flow charts
- Profile graphs
- Prospect and/or risk modelling and risk simulation
- Prospect and/or risk register/database
- Prospect and/or risk register/database
- Rag status reports
- Ranking and rating
- Relations diagram
- Resource analysis
- Checklists
- Scatter diagram

- Sensitivity analysis
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Stress testing
- String diagram
- Surveys
- Tables
- The decision model
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis
- Waterfall charts
- Why – why diagrams

E.7.1.1. Structure and process definition

< Structure and process definitions should assist in the optimizing of what is covered within the organisation's scope and act as a basis for review, improvement and recording explicit knowledge.

E.7.1.2. Repetitive and frequently conducted processes

< It is possible to readily observe and measure the performance of repetitive and frequently conducted processes e.g. mass production within a factory. They readily lend themselves to prospect and risk assessment because of the potential to collect an abundance of measured data. This data is capable of statistical analysis providing confidence in the performance of the process and may also be used to control the process known as statistical process control.

E.7.1.3. Non-repetitive and infrequently conducted processes

< Unlike repetitive and frequently conducted processes, non-repetitive and infrequently conducted processes by their nature provide much smaller amounts of data making statistical inference and statistical process control impractical and also providing less confidence that the process will be reliable. Typical examples are bespoke projects and large industrial plants subject to low frequency major hazard events. Non-repetitive and infrequently conducted processes also generally include contingency processes covered in section 0 Contingency arrangements implementation.

Confidence in non-repetitive and infrequently conducted processes can be enhanced through planned maintenance, inspection and testing as per section E.5.5 Maintenance, inspection, testing and calibration as well as other assurance processes, as well as the estimation of overall performance via the synthesis of performance data relating to the performance of component process elements.

There is a general lack of knowledge when it comes to rare events with serious consequences due to the rarity of the occurrence of such events. In such circumstances, the organisation should apply the precautionary principle – refer to section E.1.6.8 Residual prospect, risk and controls acceptance.

E.7.1.4. Significant prospect and risk systems of work

< An example of a system of work is a safe system of work that defines controls to prevent personnel harm when conducting hazardous tasks such as working in a confined space. Another system of work could be that to optimise the likelihood of winning a contract.

Systems of work may be defined within project plans, method statements, work instructions, formal systems of rules and may control permit forms, as appropriate.

Systems of work typically involve configuration management – refer to section E.5.4.4 Configuration.

Some systems of work may be defined generically to be used in combination with other process control measures.

E.7.1.5. Projects

< Projects may be delivered externally or internally and vary in size, complexity and duration. Projects should have a defined purpose and plan that takes account of the contractual and other stakeholder needs and expectations.

Project milestones normally align with formal or informal contract requirements – refer to section E.3.3 Contracts.

Project documentation (data) requirements typically include the following aspects which should adequately be addressed during project proposal and implementation and during the review of completed proposals and prior to the starting of an agreed project:

- Definitions of project organisation, responsibilities and authorities including interfaces with other project organisations,
- Working language(s) and need for translation and supervision of those not speaking working language(s),
- Interfaces with the customer and other stakeholders,
- Contracts and definitions of good/service and accompanying information to be delivered to customer,
- Definitions of general customer and other stakeholder requirements including applicable standards and legislation,
- Notifications and submissions required by legal bodies,
- Project implementation plan(s),
- Key definitions used to control and report the status of structures and processes,
- Existing historical hazard and risk information (including surveys),
- Preliminary surveys and risk assessments conducted by the project organisation or other parties,
- Requirements to safeguard customer property including goods supplied directly by the customer,
- Structures and processes to deliver the good/service,
- Requirements for identification and traceability of delivered goods defined,
- Requirements for verification and/or validation,
- Requirements for measurement and measuring equipment,
- Requirements for human, plant, equipment and materials resources,
- Requirements for monitoring equipment and calibration,
- Requirements for preservation and safety of goods during manufacture, transport, storage, installation, commissioning, decommissioning, demolition and disposal,

- Identified personnel welfare requirements when working away from base,
- Purchasing requirements identified (approval of suppliers and subcontractors,
- Project monitoring requirements,
- Requirements for record generation, retention and sharing.

Organisations may benefit by adopting an 'out of the box' approach where project management arrangements are as far as possible defined using generic structures, processes and document template(s)s. This also helps ensure compliance with the organisation's management system and best practice and provide a foundation and structure for periodic generic project management review, continual improvement and alignment with stakeholder needs and expectations.

Project planning and control processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Activity network
- Cost benefit analysis
- Critical path analysis
- Decision tree
- Design of experiments
- Flow chart
- Gantt chart
- Hierarchical task analysis
- Infrastructure tour
- Interviews
- Line graph
- Linear programming
- Process flow charts
- Profile graphs
- Prospect and/or risk register/database
- Rag status reports
- Ranking and rating
- Resource analysis
- Checklists
- Stakeholder analysis
- Stakeholder engagement matrices
- Strengths weaknesses, opportunities and threats analysis
- Stress testing
- Surveys
- Tables
- Tree diagram
- Uncertainty analysis
- Utility theory
- Value analysis
- Waterfall charts

E.7.1.6. Goods and services design and development

< Goods and services are delivered via an organisation's or project's normal structures and associated normal processes – refer to section 0 Normal Structures and Processes, as a whole.

The design and development of goods and services should:

- Align as closely as possible with stakeholder needs and expectations via careful market research, prospect and risk assessment – refer to section C.3.2 Marketing,
- Attempt to differentiate them from competitors goods and services through the application of creativity to stimulate innovation,
- Consider the prospects and risks of goods and services over their entire planned life with respect to customers and other stakeholders,
- Optimise the effectiveness and efficiency of the design and development delivery processes while making the best use of resources and increase the likelihood of fully satisfying requirements including quality, on time delivery and profitability.

E.7.1.7. Measurement and testing

< Measurement provides data for processing as per section E.4.3 Data processing supporting E.4.3.1 Accounting and E.4.3.2 Indicators and where appropriate statistical process control as per section E.7.1 Structure and process design. Metrological methods may be used to facilitate accurate and reliable measurement.

E.7.2. Structure and process implementation

< Suitable and sufficient documentation should be developed and made available to allow structures and processes to be operated and maintained – refer to E.4.1 Management system structure.

Resource levels should take account of the need to manage contingency processes should normal processes fail. Sufficient levels of competent personnel need to be available to implement emergency arrangements. Critical spares need to be available held by the organisation or reserved for the organisation by a supplier. Arrangements may need to be coordinated across the organisation and between other organisations.

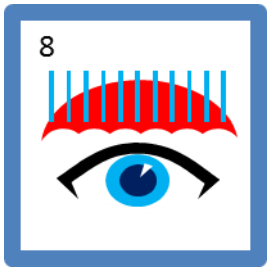
E.7.3. Structure and process cessation

< Organisations should endeavour to ensure that end of the life of structures and processes are effectively managed to satisfy the needs and expectations of customers and other stakeholders while making the best use of resources be they people (including tacit knowledge), commercial relationships, data (including explicit knowledge, intellectual property), matter, energy, supplier relationships etc.

Contingency arrangements should be developed, made ready and implemented, as necessary, for unscheduled permanent or temporary cessation of structures and processes – refer to section 0 Contingency Structures and Processes.

Cessation needs to be addressed as part of the design of structures and processes and periodically reviewed to ensure it remains appropriate – refer to sections E.7.1 Structure and process design and 0 Review and Action.

E.8. Contingency Structures and Processes



< The need for contingency structures and processes arrangements should be determined via prospect and risk assessment and requirements of legislation, as applicable - refer to sections E.1.6 Prospect and risk assessment

Contingency structure and process arrangements are needed to mitigate risk after there has been a disfunctionality or failure of the organisation's normal structures and/or normal processes and to attempt to maximise the prospect of restoring the normal functionality of the organisation. Contingency arrangements may also be required to cope with a significant realised prospect that normal processes cannot cope with. The aim is to minimize the disruption to normal structures and normal processes, negative impacts on the organisation and to minimize the time between the loss of normal structures and normal processes and their reestablishment. A contingency process and its relationship to a normal processes are shown conceptually in Figure 21: Contingency Process.

Failure of the organisation's normal functionality may be triggered by an internal or an external event which may involve disruption or degradation of structure and/ process. Contingency arrangements typically include such issues as the need for corrective action and preventive action, emergencies, crises, goods recalls and disaster recoveries. The objective of contingency arrangements is to return to the organisation or project to normal operation as effectively and efficiently as possible making the best use of resources while minimising loss.

The design and operation of contingency processes presents a particular challenge because the processes are often triggered infrequently or not at all and the exact circumstances when contingency processes are required to operate can vary and often cannot be precisely predicted. This requires that contingency structures and processes take account of prospect and risk assessments and are carefully tested using simulated conditions where necessary.

Because situations requiring the operation of contingency arrangements are often very infrequent, as is the case with low frequency major impact events, there can be denial by directors and leaders that such events may realistically occur accompanied by a resistance to invest management resource into their development and maintenance.

For situations which are complicated or complex and diagnosis is critical to successfully managing the situation a symptom-based approach may be employed. Such approaches are typically used in the major hazard industries during emergencies.

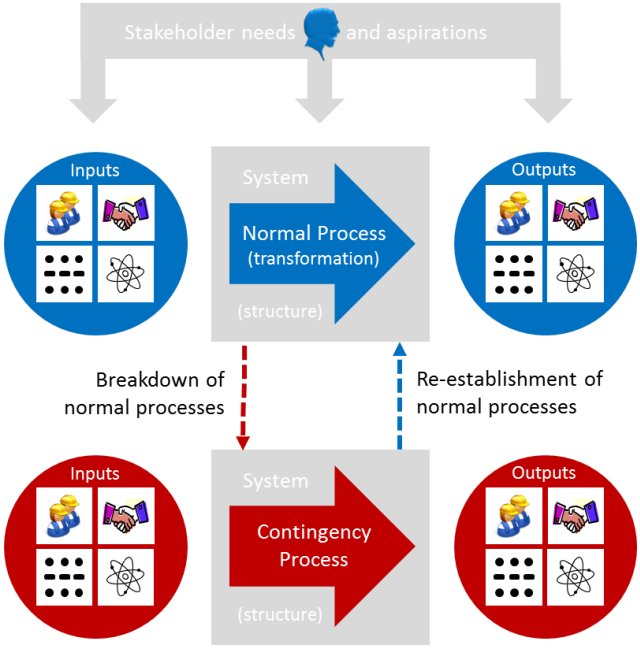


Figure 21: Contingency Process

Although not covered in this section, management of conflict may technically be classed as a contingency process – refer to section E.2.5.3 Management of conflict.

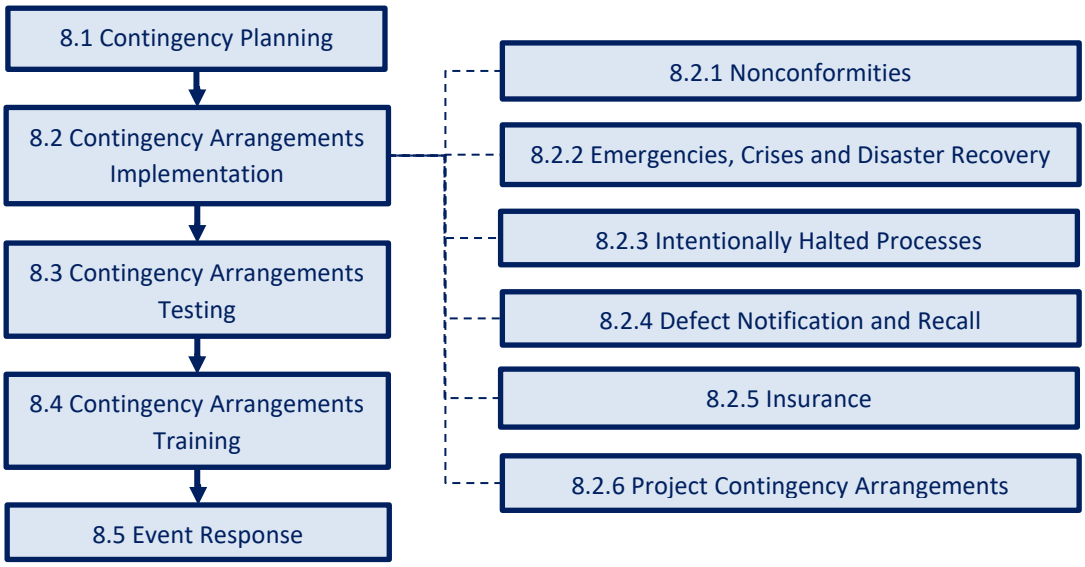


Figure 22: Contingency Structures and Processes Subsections

E.8.1. Contingency planning

< Contingency planning should cover the identification of the need for organisation and project structures and processes that are able to:

- Deal with revealed nonconformities and other circumstances requiring corrective action,
- Take over from the organisation's normal processes when they are stressed and not coping or have become dysfunctional,
- Respond to any unplanned events threatening the normal functioning of the organisation or significant stakeholder needs and expectations.

The planning process should be based on or informed by:

- Legislation and adopted standards,
- General stakeholder needs and expectations,
- Prospect and risk assessment,
- Industry good practice experience.

Contingency planning may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Bowtie
- Interviews
- Prospect and/or risk register/database
- Rag status reports
- Strengths weaknesses, opportunities and threats analysis
- Stress testing
- Surveys
- Tables

- Tree diagram
- Value analysis

E.8.2. Contingency arrangements implementation

< The organisation should ensure that contingency structures and processes covered within its or other bodies' contingency plans are directly available or can readily be called upon should it be necessary to initiate contingency processes when required. This may involve establishing contracts with approved suppliers or partnering with other organisations.

E.8.2.1. Nonconformities

< The organisation should ensure that it is constantly vigilant for nonconformities throughout its structures and processes and have a formal process for tracking their lifecycle from identification to correction – refer to sections 0 Reactive Investigation and 0 Planned Monitoring. Concessions should be formally agreed and recorded when it is deemed acceptable not to correct the nonconformity.

Nonconforming structure should be appropriately marked and/or segregated or secured from conforming structure and other appropriate actions taken, as necessary, to minimize the impact of the nonconformity on the normal functionality of structures and processes – refer to section E.4.4 Conventions.

Relevant prospect and risk assessments should be reviewed and/or initiated if significant nonconformities suggest a lack of confidence in existing arrangements – refer to section E.1.6 Prospect and risk assessment. Corrective action and preventive action should be taken, as applicable, as per section E.9.2 Corrective and preventive action.

Corrected structure should be subject to reverification processes, as necessary, to demonstrate conformity to requirements.

E.8.2.2. Emergencies, Crises and Disaster Recovery

< Emergencies, crises and disaster recovery vary in their scale and often occur and need to be managed at the same time requiring response arrangements to be reactive and flexible. Managers and workers are required to behave differently to normal and to be capable of executing carefully planned and tested contingency arrangements in an appropriate way to suit the circumstances. Such situations can place a lot of pressure on staff because of the novel and urgent aspects of managing and coping with the situation, which inevitably may cause stress – see section E.2.4.4.4 Fitness.

Emergencies, crises and disaster recovery arrangements have common elements and should ideally not be defined in isolation of one another. Any interfaces between separate plans should be identified and harmonised. In addition, the situations requiring that the plans are engaged and the point that normality can be re-established should be defined.

When identifying potential emergency, crisis and disaster recovery situations special attention should be paid to plant start-up and shutdown conditions and reasonably foreseeable events requiring contingency arrangements.

Issues may include a diversity of situations such as small scale spillages of chemicals or failure of emission abatement equipment and serious situations significantly endangering humans, physical and virtual assets and the environment. The organisation should be prepared for each type of credible emergency, crisis or disaster recover situation.

The severity of the impact and disruption on an organisation may vary at different stages of the event. Response arrangements need to be able to adapt during the progress of the event informed by monitoring and review so that resources are effectively and efficiently optimally deployed. This may be aided by using event classification as an indicator, which may vary across the organisation. This helps to track an emergency, crisis or disaster recover across the whole organisation, where required, and direct and redeploy resources to achieve the greatest benefit. Refer to section E.10.1.3.1 Event classification.

The organisation should address:

- Effects of natural disasters,
- The nature of on-site hazards, e.g. flammable liquids, storage tanks and compressed gases, and measures to be taken in the event of spillages or accidental releases,
- The most likely type and scale of event needing a contingency response,
- The most appropriate method(s) for responding to an emergency, crisis or disaster recovery,
- Required personnel resources bearing in mind resources needed for continuing normal operations and the likely logistics and duration of response scenarios,
- Internal and external communication,
- The action(s) required to minimize damage and other types of loss,
- Mitigation and response action(s) to be taken for different types of event,
- The need for processes for post-event evaluation to establish and implement corrective action and preventive action,
- Periodic testing of contingency response procedure(s),
- Training of contingency response personnel,
- Identification of key personnel and external agencies providing support, including contact details,
- Evacuation routes and assembly points,
- The potential for an emergency situation(s) or event at a nearby facility (e.g. plant, road, railway),
- The possibility of mutual assistance from other organisations and the need for cooperation and coordination,
- The need for alternative temporary premises,
- The need to have contingency contractual arrangements in place,
- Provision of necessary training for event preparedness and response, including, if necessary, for any new measures.

Organisations should implement appropriate event preparedness and response plans. They typically but not exhaustively may cover:

- Fire
- Flood
- Severe weather
- First aid
- Loss of data systems

- General crisis
- Loss of personnel availability
- Supplier interruption
- Loss of financial viability
- Hostile takeover
- Fraud
- Theft
- Criminal or commercial litigation
- Loss of essential supplies to premises
- Loss of key customer

E.8.2.3. Intentionally halted processes

< The organisation should empower personnel directly involved with production structures and processes to be able to stop processes if they believe that personnel, the environment, plant, equipment, data, commercial obligations or any other asset could be significantly endangered. The objective of this is to prevent avoidable loss using the knowledge and experience of those closest to the structures and processes able to exercise preventive action in the shortest possible time. The organisation must promote a just culture so that staff feel confident to take action without fearing they may be blamed should their judgement turn out to have been flawed.

See also sections E.2.2 Responsibilities and authorities and E.2.5.3 Management of conflict.

E.8.2.4. Defect notification and recall

< Organisations should have contingency arrangements for communicating with customers and other relevant stakeholders in case it is revealed that an internally or externally delivered good or service is significantly defective so that risk may be controlled and corrective action or compensatory action can be executed.

E.8.2.5. Insurance

< The organisation should maintain suitable and sufficient insurance to transfer risk, where appropriate, to mitigate its risks and to comply with regulations and to meet customer and other stakeholder requirements. The following are typical types of common insurance:

- Employers liability;
- Public and product liability;
- Buildings, vehicles and other assets.

Customers or other stakeholders may require specific levels or aspects of insurance. There may also be legal requirements to have insurance in place – refer to section E.1.5 Legislation and standards.

Projects may require specific types or additional levels of insurance.

E.8.2.6. Project contingency arrangements

< Projects may make use of the organisation's general contingency arrangements where applicable but may require additional contingency arrangements because of novel aspects of the project and specific customer and stakeholder requirements. See also section E.7.1.5 Projects

E.8.3. Contingency arrangements testing

< Thorough testing of contingency arrangements is critical to their success when called upon. The reason for this is that contingency arrangements are by their nature not used regularly, unlike normal structures and their associated normal processes that can generally be observed to be successful.

Contingency arrangements can also be difficult to validate because of the difficulty of simulating the conditions in which they are required to be initiated. It is often useful to test the various components of the arrangements and test the full arrangements acting as a whole less frequently because of the large commitment of participating resources involved which may include the coordination and cooperation of bodies external to the organisation.

Contingency arrangements testing can often be combined with contingency arrangements training – refer to section E.8.4 Contingency arrangements training.

E.8.4. Contingency arrangements training

< Dedicated contingency training is required because contingency structures and processes are generally not part of normal organisation experience unless perhaps the personnel work directly within emergency response functions. Training should attempt to be broad based to cater for the variation in likely contingencies that may require a response. Personnel require training so that they can perform their assigned posts and roles and also training collectively to interact effectively and efficiently as a team.

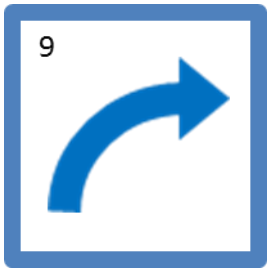
Contingency arrangements training can often be combined with contingency arrangements testing – refer to section E.8.3 Contingency arrangements testing.

E.8.5. Event response

< Personnel should be vigilant for situations constituting or potentially developing into significant or major events and alert personnel empowered to implement response plans. The response management structures including control centres should be established without delay and the response processes initiated. The progress and performance of plans should be continually monitored and reviewed and if necessary plans should be modified to achieve its objective. Personnel should comply with published plans and directions unless officially changed by those managing the response.

The detail and timing of observations, communications and actions etc. should be recorded to allow events to be investigated as per section E.10.1.1 Evidence preservation.

E.9. Change



< Change embraces all types of significant permanent or temporary change within the organisation, and the environment under its control or able to influence, e.g.; corrective action, strategic or tactical change, structural change or experiment and change of the management system. Change management should be directed to improve the effectiveness and efficiency of the organisation so that it equitably meets its stakeholder's needs and expectations while making the best use of resources. Change management should be systematic and ensure that ill-conceived change proposals are detected and rejected.

Plan-Do-Check-Act is the basis of the cyclic process of learning and failing to retain its effectiveness results in an organisation losing its knowledge and competence. Change processes should be directed to ensure that the organisation's structures and processes deliver value continuously, continually or potentially via contingency arrangements, as applicable. Value should be optimised as equitably perceived by the stakeholders making the best use of resources. Redundant non-value adding elements should be removed where commercially viable.

The improvement of structures and processes may be aided by the use of appropriate management tools and techniques – refer to section E.1.8 Management tools and techniques.

Change may be initiated from inside or outside of the organisation reactively or proactively – refer to sections 0 Reactive investigation – Events, 0 Planned monitoring and 0 Review and Action.

Managing change may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Failure Prevention Analysis
- Force Field Analysis
- Hierarchical Task Analysis
- Infrastructure Tour
- Interviews
- Line Graph
- Prospect and/or Risk Register/Database
- RAG Status Reports
- Surveys
- Tables
- Tree Diagram
- Value Analysis

See also section E.1.6.1 Prospect and risk assessment planning.

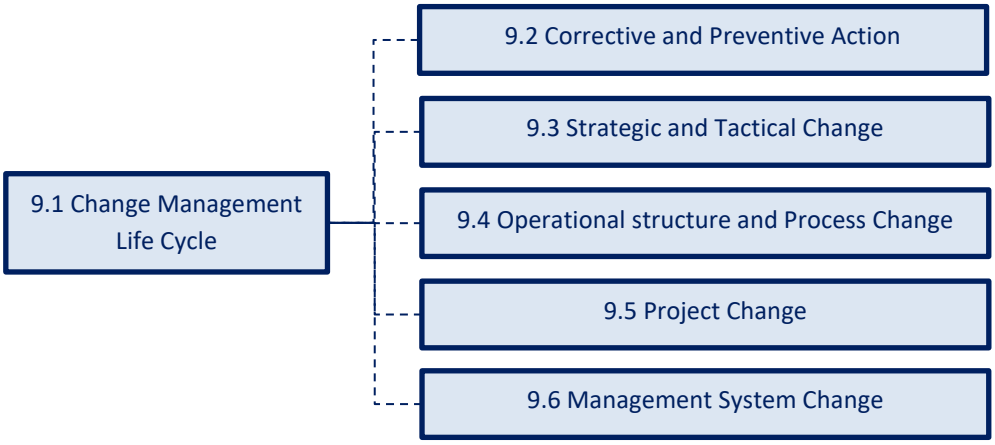


Figure 23: Change Subsections

E.9.1. Change management life cycle

< An organisation needs to track the progress of all types of permanent and temporary change to demonstrate effective management control to avoid implementing ill-conceived modifications and experiments.

Change proposals and their implementation should be classified according to their potential to impact performance so that an appropriate level of management control is applied to maximise potential opportunities and avoid or control risk – refer to Appendix 2: Classification of Structures and Processes Example.

Any significant change should be managed as a project from inception to completion as per section E.7.1.5 Projects.

The life cycle of a change will typically include:

- Receipt of change proposal,
- Proposal prospect and risk classification,
- Proposal initial appraisal,
- Proposal initial acceptance or rejection,
- Assignment of reviewer/review team,
- Detailed prospect and risk analysis and appraisal including cost benefit analysis,
- Reporting of proposal appraisal,
- Independent peer review (as applicable to the classification),
- Report and peer review acceptance or rejection, conclusion and recommendation,
- Management approval to proceed with implementation,
- Development of change implementation plan (project plan),
- Acceptance and approval of change implementation plan,
- Establishment of change implementation project organisation,
- Change implementation,
- Change implementation evaluation, review and action.
- Post change implementation monitoring.

E.9.2. Corrective and preventive action

< Corrective action and preventive action involve change addressing the immediate causes and the root causes of problems. People should be engaged creatively in the resolution of both types of action.

Corrective action is reactive in nature rectifying a revealed nonconformity while preventive action is proactive based on or informed by risk data. Corrective action is about attempting to rectify what has happened in the past while preventive action is about preventing what could potentially happen in the future. The PDCA structure of this MSS embodies corrective action and preventive management processes and may be conducted together, where appropriate – refer to section A.1.2 Plan-Do-Check-Act.

The need for corrective action is primarily identified during the various forms of planned monitoring ranging from formal audits down to less formal self-monitoring based on individual vigilance – refer to Figure 27: Planned Monitoring Example and 0 Planned monitoring. Action is agreed to correct nonconformities or other undesirable situations via review and action processes – refer to section 0 Review and Action.

The need for preventive action is identified during prospect and risk assessments, event investigations, planned monitoring, and management review processes – refer to sections E.1.6 Prospect and risk assessment, E.10.1.3 Investigation and analysis of root causes, 0 Planned monitoring and 0 Review and Action. Prospect and risk assessment processes are used to identify prospects and risks, and assign prospect and risk controls to prevent undesired events – refer to section E.1.6 Prospect and risk assessment. Prospect and risk controls in subsequent sections of this MSS cover the implementation of prospect and risk controls and good practices helping to encourage desired events and prevent undesired events. When events occur and the root causes are determined which may reveal the need to review the validity of prospect and risk assessments in the light of the new data and revise them or create additional assessments – refer to section E.10.1.3 Investigation and analysis of root causes. The analysis of planned monitoring may provide information on trends indicating the need for action to prevent the reoccurrence of a nonconformity or occurrence of similar nonconformities – refer to sections 0 Planned monitoring and 0 Review and Action.

Information on the results of any corrective or preventive action should include information on the review of the effectiveness of these actions.

E.9.3. Strategic and tactical change

< Top-level strategic change may have implications throughout the organisation and externally and are normally given a high classification. Strategic change proposals should be appropriately prospect and risk assessed so that the impact on the overall functionality of the organisation are fully understood and considered.

Tactical change should be similarly managed and care taken to ensure the change is still compliant with the strategic plan and policy statement to ensure management is vertically integrated.

E.9.4. Operational structure and process change

< Organisations should establish systems for encouraging stakeholders to participate in all types of improvement. Staff making suggestions should be treated with respect and provided with feedback

on the proposal including an explanation the reason when it is not accepted – see section E.11.7 Self-monitoring and vigilance.

Significant change needs to be managed as a project that has the full commitment of top management. It should be well planned and where appropriate subdivided into conveniently managed subprojects – refer to section E.7.1.5 Projects.

Relevant stakeholders should be appropriately involved in the change process and expert advice sought as necessary.

E.9.5. Project change

< Projects are used to implement agreed internal and external changes. Significant change within the project should be managed like any other type of change – refer to section E.9.1 Change management lifecycle.

Project progress should be monitored and reported against defined success criteria to ensure that problems are identified as early as possible and action taken – refer to section E.7.1.5 Projects.

E.9.6. Management system change

< The management system is used to direct and guide the organisation's and project's processes and it is therefore critically important that any change to the management system whether permanent or temporary is very carefully controlled – refer to section E.4.2 Control.

E.10. Reactive Investigation

< Reactive investigation is principally used following an event such as an accident, undesired event or near miss, resulting from one or more failures in the organisation's management system, organisation culture, knowledge base or corporate leadership. Positive outcome events such as a congratulating letter from a customer should also be included in reactive investigation because it may be helpful in achieving improvement, is a valuable source of data in marketing, and communicating positive feedback helps reinforce good practices and raise staff moral and motivation.

Events may come to the attention of an organisation through internal or external reporting processes or planned monitoring – refer to section 0 Planned monitoring. Reactive investigation complements planned monitoring covered in section 0 Planned Monitoring and neither is meant to be a substitute for the other.

Potential improvement may result from the reactive investigation of anything that occurs unexpectedly but it makes sense to filter events to ensure that management resources are focused where the return on expenditure of effort is maximised. Events may usefully be classified according to potential to cause loss – refer to section E.10.1.3 Investigation and analysis of root causes.

Reactive investigation of an event is different to a contingency process, which may include emergency and crisis response covered in section 0 Contingencies. Reactive investigation processes normally follow conduct of contingency processes but may overlap.

Reactive investigation should, as appropriate, contribute to the generation of indicators as per section E.4.3.2 Indicators.

Planned monitoring facilitates improvement by feeding into review and action covered in section 0 Review and Action.

Reactive investigation may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Concentration diagrams
- Control charts
- Data handling and display
- Failure mode and effects analysis
- Hierarchical task analysis
- Infrastructure tour
- Interviews
- Line graph
- Matrix data analysis chart
- Matrix diagram
- Nominal group technique
- Pareto analysis
- Pareto charts
- Performance indicators
- Process capability

- Process flow charts
- Prospect and/or risk register/database
- Radar chart
- Rag status reports
- Relations diagram
- Root cause analysis
- Stress testing
- Surveys
- Tables
- Tree diagram
- Why – why diagrams

Investigation process

Reactive investigation is shown diagrammatically in Figure 24: Reactive Investigation. It covers internal and external negative and positive consequence events such as accidents, undesired events, occurrences and near misses including customer complaints and positive feedbacks. Internal and external events are of interest to an organisation as both may contribute to learning lessons and making improvements. Reactive investigation also covers things that may be deemed to be positive e.g., a novel event that may present a prospect for the organisation to exploit. Another example would be observed positive data e.g. beneficial trend in the market or the economy needing to be fed into marketing – refer to section E.3.2 Marketing. See also Appendix 4: Bowtie.

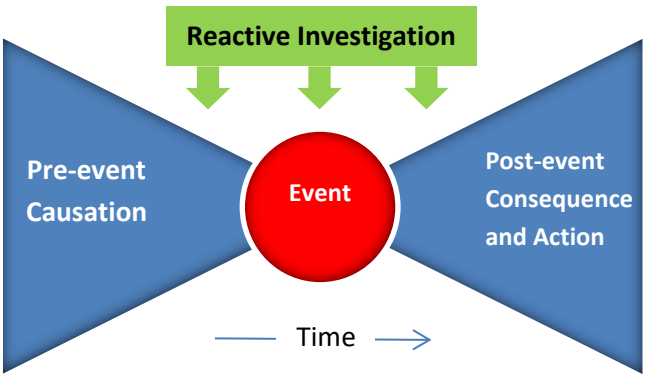


Figure 24: Reactive Investigation

Direct and root causes

Reactive investigation processes should be designed to:

- Establish the circumstances leading up to, during, and after the event,
- Identify whether existing management arrangements were or are adequate,
- Provide suitable records of the event for comparison with past and future events,
- Comply with regulatory and corporate reporting requirements.

Accidents, undesired events and near misses should be analysed to determine the direct and root causes. Corrective action should then be taken to fix the direct cause of the undesired event and where applicable broader weaknesses in the management arrangements such as communication, training, documentation, risk assessment etc. Multiple event investigation data and conclusions can be used to review risk assessments.

Near miss events

Near miss events have the advantage over accident or events because of their more frequent occurrence creating the potential for providing large amounts of very valuable data for the

organisation to learn from. Research shows that for major or over 3 days absent from work accident injuries there are 7 minor injuries and 189 near misses. Near misses represent failures in the same or similar prospect and risk controls – it is just fortuitous that a near miss is not an injury. Although near miss reporting is normally associated with safety it is just as applicable and valuable to any other aspect of management such as goods and services quality failures causing upset to customers.

For personnel to freely report near misses the organisation must promote a 'just culture', sometimes incorrectly termed a 'blame free organisation culture' – refer to section E.1.3 Policy statement. It should be noted that the number of near misses reported will not necessarily correlate with a particular aspect of performance e.g. when initially introducing a near miss reporting initiative the frequency of reporting would be expected to rise before plateauing irrespective of actual performance. Near miss reporting may also fall off due to staff apathy, work pressures, attention drawn to other things or due to deteriorating trust.

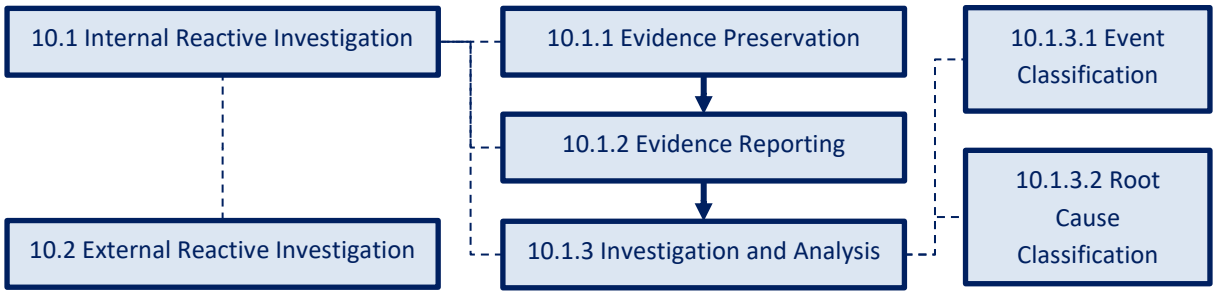


Figure 25: Reactive Investigation Subsections

E.10.1. Internal reactive investigation

< Internal reactive investigation covers:

- Preservation and collecting of evidence,
- Recording of key details,
- Analysis to determine the immediate causes of the event,
- Analysis to determine the root causes of the event,
- Performance of appropriate corrective action and preventive action,
- Briefing of lessons to be learnt from internal and external events to help prevent their re-occurrence,
- Reporting of significant events to relevant stakeholders.

E.10.1.1. Evidence preservation

< First priority should be given to the preservation of life, the safety of personnel, protection of the environment and preventing loss of valuable assets – refer to section 0 Contingencies.

The organisation should then take steps to preserve and record evidence relating to the event. This may include setting up physical barriers to prevent unauthorized entry to the event location or systems. Cameras may be used to record evidence without disturbing the scene.

E.10.1.2. Evidence reporting

< Environmental undesired events must be reported as soon as possible to the relevant government agency, facility owners and structure and process owners to allow them to take their own contingency

actions to mitigate the impact of the event e.g. a release of pollution to the atmosphere or a watercourse. The event may have wider unforeseen impacts on the functionality of systems needing contingency arrangements to be implemented – refer to section 0 Contingencies

E.10.1.3. Investigation and analysis of root causes

< Appropriate use should be made of Root Cause Analysis covered in Appendix 4: Management Tools and Techniques.

Identification of immediate causes and root causes facilitates corrective action and preventive action to improve structures and processes that deliver the various aspects of performance. Improvement resulting from immediate causes may be more localised while improvements from root causes may be far reaching especially where generic structures and processes can be improved e.g. training or communication structures and/or processes.

The output of the event report should clearly communicate the required corrective action and preventive action and their scope of application – refer to section E.9.2 Corrective and preventive action.

E.10.1.3.1. Event classification

< The event classification definitions should ideally be aligned with the structure and process classification definitions – refer to section E.1.6.2 Classification of structures and processes and Appendix 2: Classification of Structures and Processes Example.

The rigor that events are investigated may be linked to the event classification definitions. However, an event with a low classification may elicit root causes that have implications for other higher classified structures and processes that are apparently independent of the event.

Event classification may also be used to aid the management of emergencies, crises and disaster recovery - refer to section E.8.2.2 Emergencies, Crises and Disaster Recovery.

E.10.1.3.2. Root cause classification

< Root causes can be classified according to their perceived importance to facilitate prioritization of management action.

The processes of corrective action and preventive action become simpler when the root cause classification structure aligns with the structure of the organisation's formal management system. A twelve-element taxonomy example is described in section A.1.3 Universal PDCA Twelve Element Structure.

E.10.2. External reactive investigation

< Many events occur outside of the organisation that it can learn from and feed into its continual improvement processes. Event data may be officially communicated to the organisation by a stakeholder following its own internal reactive investigation processes or otherwise be generally communicated e.g. a report in the journal of an official body etc.

The organisation should assign roles and responsibilities to ensure that potentially valuable external event data is collected, appropriately filtered, analysed, lessons identified and appropriately communicated and improvement changes initiated via review and action.

E.11. Planned Monitoring

< Internal and external planned monitoring generally comprises audits, inspection, surveys and benchmarking etc. and provides information on weaknesses within the organisation's management system and its strategic, tactical and operational structures and processes enabling corrective action and preventive action to be performed.

Planned monitoring is an essential element of the management system and together with reactive investigation forms the 'check' part of the Plan-Do-Check-Act management cycle – refer to Figure 4: Universal Plan-Do-Check-Act Twelve Element Structure.

It is essential to ascertain whether the management system is being followed in all respects, and if not the reason why. Planned monitoring ensures that structures and processes:

- Conform with approved formal management requirements,
- Conform with relevant standards and legislation,
- Conform with customer and other relevant stakeholder requirements,
- Are effective and efficient and opportunities for improvement are identified,
- Lead to customer and other stakeholder satisfaction.

Planned monitoring is used to identify deficiencies in the organisation for subsequent remedial action and to prevent future problems and can be applied internally within the organisation and externally within its supply and delivery chains, as appropriate. They should form a hierarchy of monitoring measures and should take account of prospect and risk assessments, past monitored performance and reactive investigations – refer to section 0 Reactive Investigation.

The observations made during planned monitoring processes help improve the management system via review and action covered in section 0 Review and Action. However, it is impractical for planned monitoring to cover everything and pragmatism requires that structures and processes have inevitably to be sampled informed by past planned monitoring findings, reactive investigations and prospect and risk assessments.

Non-uniformity of organisation performance

Major events are usually high in consequence but low in frequency. This means that reactive event investigation provides insufficient data to reliably assess an organisation's performance or to detect its possible decline towards becoming seriously dysfunctional. It is therefore critically important that planned monitoring is used to understand and assess an organisation's performance and whether the contributing aspects are improving, steady or deteriorating, rather than just waiting for a major event that may cause widespread harm and/or bankrupt the organisation and seriously impact its stakeholders. The selection and use of performance indicators as a whole should also take account of this critically important issue – refer to section E.4.3.2 Indicators.

It should be noted that the performance of an organisation is not homogeneous and strengths and weaknesses may coexist in close proximity. Performance is multi-dimensional – some performance drivers may be improving, while others may be steady or deteriorating. Common drivers contribute to the multiple facets of an organisation's performance but there is still the potential for significant difference in the facets of performance e.g. good commercial performance does not indicate good

safety performance. Risks associated with different facets of performance behave differently even though there may be a degree of coupling between them. An aspect of the management system e.g. 'competence' may not be complied with uniformly across the different facets of performance and the context of application can vary in complexity, risk and the degree that it is novel to the organisation. An integrated management system has many advantages but it cannot automatically deliver uniform performance.

Latent effects

Many infrastructure risks are due to historical human errors and are unlikely to be detected by performance indicators or standard monitoring methods. Latent human error potentially occurs throughout the whole infrastructure life cycle from design to decommissioning, and often spans a succession of management administrations. Improving the current organisation personnel performance may have negligible effect on historical latent human errors that determined the current plant design and residual risks.

Proportionate monitoring

Planned monitoring should match the complexity of the multiple facets of the organisation's performance and be experience informed, Prospect and/or risk informed, as applicable. It should be informed by the criticality of prospect and risk controls i.e. the decreased prospect or increased risk if a prospect and/or risk control is not effectively implemented or fails. This can be facilitated systematically by classifying structures and processes according to their potential to impact the organisation's performance – refer to section E.1.6.1 Prospect and risk assessment planning and Appendix 2: Classification of Structures and Processes Example and Appendix 3: Prospect and Risk Rating System Example.

Overall management attention should be appropriately wide focused, risk informed, experience informed, detailed and constantly vigilant. Apparent good organisation performance demonstrated by key performance indicators may lead to complacency – monitoring has limitations especially in respect to low frequency major threats and must not be a substitute for overall good management.

Indicators

Planned monitoring should, as appropriate, contribute to the generation of indicators as per section E.4.3.2 Indicators.

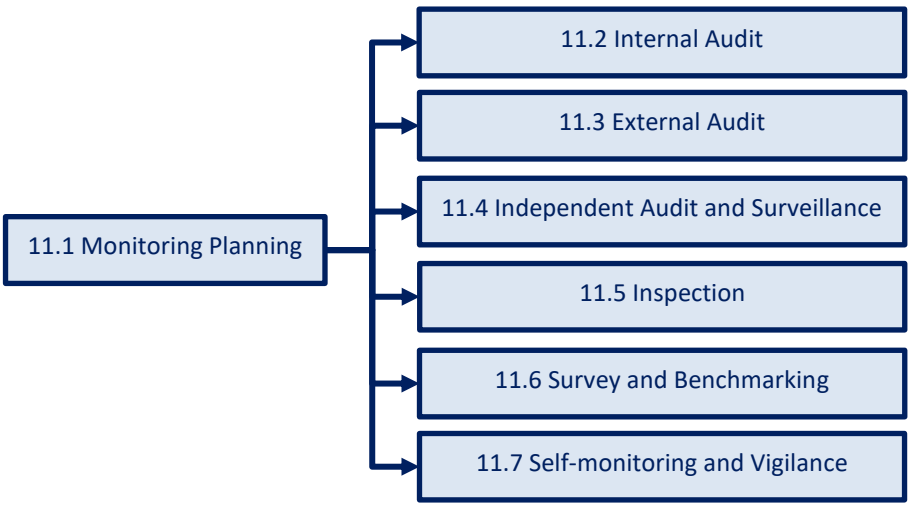


Figure 26: Planned Monitoring Subsections

E.11.1. Monitoring planning

< The goal of monitoring planning is to achieve the maximum value from the monitoring resource expended and use diverse methods to deliver synergistic benefits. This may be achieved through the dynamic planning of planned monitoring which should be evidence informed from past reactive and planned monitoring and prospect and/or risk informed – refer to controls criticality in Appendix 3.4 Prospect and risk register structure.

Monitoring planning may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Check sheets
- Data handling and display
- Focus groups
- Gap analysis
- Hierarchical task analysis
- Performance indicators
- Prospect and/or risk register/database
- Radar chart
- Rag status reports
- Surveys
- Tables
- Tree diagram

Monitoring diversity

A diversity of monitoring approaches including organisation based and process based audits can add value by using management resources more effectively and efficiently aligned to the scope of what is being monitoring.

Scoring systems

Scoring systems may be employed to help communicate performance, aid comparison and judge improvement or deterioration. It should ideally be unified for simplicity of communication and understanding – refer to section A.5.1 Compliance scoring system.

Planned monitoring personnel

Involving all managers in monitoring helps them to keep in touch with structures and processes and the workplace environment and organisation culture, as well as being seen to be committed and involved by the workforce.

All aspects of monitoring may be conducted using employees or contracted personnel. Contracted personnel may be used to supplement the organisation's resources and also to provide particular expertise and independence.

Audits should be led by competent lead auditors and audit teams should include competences matching the scope of the audit.

Integrated planned monitoring

The effectiveness and efficiency of planned monitoring can be enhanced by focusing planned monitoring on the organisation or project structures and processes rather than specific facets of performance.

Audits and inspections should generally be focused on the functionality and total performance of structures and processes although this will depend on the availability of competent auditors and inspectors.

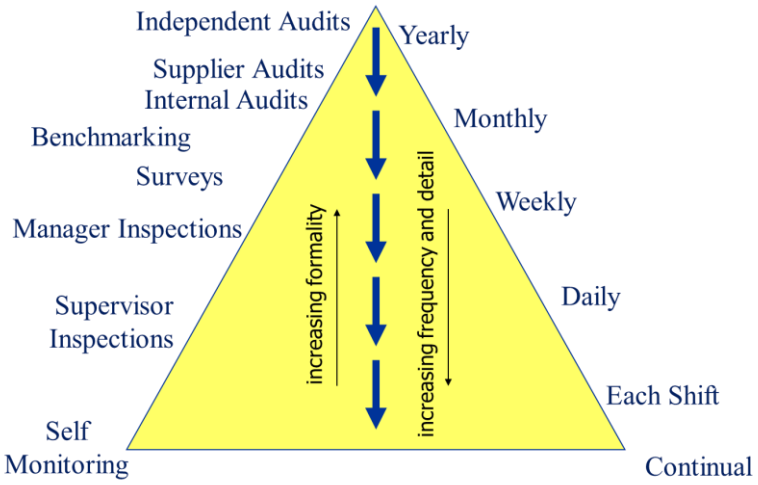


Figure 27: Planned Monitoring Example

Supplementary audits, reviews and inspections can also be conducted to focus on specific issues. These may follow a significant event or other hot topic confronting the organisation and possibly of concern to stakeholders.

Dynamic planning

Different types of planned monitoring should be coordinated and conducted at an appropriate frequency and formality and form a multi-layered hierarchy as shown in Figure 27: Planned Monitoring Example. In general, the conduct of planned monitoring is more formal towards the top of the hierarchy requiring a higher level of competence to coordinate and execute and the frequency of conducting the monitoring increases towards the bottom of the hierarchy with self-monitoring being ideally continual. Each type of monitoring should check that subordinate types of monitoring are operating effectively.

The targeting and frequency of planned monitoring can be adjusted over time to ensure the most value is obtained for the resource expended. This should ideally include prospect and/or risk informed monitoring which takes account of the criticality of prospect and/or risk controls – refer to section E.1.6.5 Prospect and risk improvement. Adjustments to the planned monitoring arrangements should be agreed and approved as part of management review and action – refer to section 0 Review and Action.

The different types of planned monitoring are complementary and should not be substituted for each other. Collectively they can be much more beneficial than the sum of their individual benefits delivering synergistic added value.

E.11.2. Internal audit

< Internal audits are conducted by the organisation to provide confidence that its management system complies with the designated standards, has been effectively implemented and is being complied with.

The management and conduct of internal audits should abide by the principles of integrity, respect, confidentiality, objectivity, independence and an evidence-based approach.

Auditors should be independent of the activity being audited, wherever practicable, and should in all cases act in a manner that is free from bias and conflict of interest. Auditors may perform the role on a part time basis.

Individuals who are involved in managing the internal audit program, and planning or conducting internal audits should demonstrate competence. This should be evaluated through a process that considers personal behaviour and the ability to apply the knowledge and skills gained through education, work experience, auditor training and audit experience.

When establishing an internal audit program, including audit objectives, scope and frequency, an organisation should take into account of the:

- Size and nature of the organisation being audited,
- Complexity and maturity of the management system,
- Organisation's aspects,
- Organisation's prospects and risks,
- Management priorities and other business considerations,
- Legislation and adopted standards obligations,
- Management system requirements,
- Results of planned monitoring,
- Previous events investigations and root causes,
- Results of previous audits (whether internal or undertaken by external parties).

The results of the internal audit program should address the performance of the management system with respect to the achievement of objectives and fulfilment of compliance with legislation and adopted standards.

E.11.3. External audit

< External audits (second party) are conducted by the organisation on critical suppliers or potential suppliers, where necessary, to provide additional confidence that the supplier organisation is complying with defined arrangements within the scope of the external audit (second party) – refer to section E.6.4 Performance evaluation. An external audit (second party) provides the opportunity to observe and assess how structures and processes will deliver contracted goods and services – refer to section E.3.3 Contracts.

An external auditor may perform the role on a part time basis.

E.11.4. Independent audit and surveillance

< Independent audits (third party) are conducted on the organisation by external stakeholders to confirm the adequacy, implementation and compliance of defined arrangements. Independent audits (third party) may be conducted to support certification of the organisation's management system.

Independent audits (third party) are potentially valuable to an organisation because of their independent objectivity. Auditees should exploit independent audit (third party) processes as a means to stimulate continual improvement thinking and the seeking of opportunities to improve the organisation's structures and processes.

E.11.5. Inspection

< Inspections are used to observe structures and processes within the workplace to identify hazardous conditions or defective structures or practices needing remedial action. They may be carried out by workers, first line or more senior managers usually by referring to and completing a structured checklist.

Inspections complement audits and are normally conducted at a higher frequency. inspections may be performed periodically on a regular basis but additionally may be performed when a particular need has been identified such as during a review process as per section 0 Review and Action.

Inspections may be carried out on people, infrastructure, materials, goods, data and suppliers. Inspections on people may include routine, unannounced and 'for cause' drug and alcohol testing compliant with the organisation's policy covered in section E.1.3 Policy statement. Inspections of people should align with the policy statement and contract of employment – refer to sections E.1.3 Policy statement and E.2.4 Employment life cycle.

Inspections may be used to verify a variety of conditions and parameters and also provide performance data – refer to section C.4.3.2 Indicators. Data may be analysed statistically as per section E.4.3 Data processing and also used to statistically control processes – refer to section E.7.1 Structure and process design.

Inspections may be performed concurrently with other management activities by a variety of managers and other personnel.

E.11.6. Survey and benchmarking

< Surveys and benchmarking may be conducted within and outside of the organisation on a range of topics such as customer satisfaction, organisation culture etc.

Each organisation needs to take an appropriate approach to elicit feedback data from customers and other stakeholders on a regular basis to ensure that confidence is retained that the organisation is aligned with the needs and expectations of its stakeholders. A project based organisation may typically issue a survey form following completion of each significant project or sequence of minor projects. A survey form may be issued directly to the customer or completed during a face-to-face or telephone interview. Survey forms should be concise, simple and provide useful indicator data required for section C.4.3.2 Indicators.

Additional focused surveys may be identified during management reviews as per section 0 Review and Action.

Benchmarking surveys may also be conducted by partnering with another organisation of a similar or unrelated type but sharing some aspect of functionality where a good practice can potentially be used to improve the organisation.

E.11.7. Self-monitoring and vigilance

< Self-monitoring and vigilance processes should be conducted by all personnel as part of their normal duties as per section E.2.2 Responsibilities and authorities. See also section E.9.4 Operational structure and process change. Self-monitoring is the critically important front line eyes and ears of the organisation. It not only needs to be fully effective in monitoring task level structures processes in real time, but also to observe that any aspect of the organisation's functionality and its interface with the external environment is adding value and not negatively impacting the needs and expectations of the organisation's stakeholders. It should also be constantly observing that the best use of resources is being made.

E.12. Review and Action

< The objective of review and action processes is to appraise and judge the functionality and performance of the organisation, its management and the various elements of the management system individually and as a whole. Additionally it agrees actions to ensure that the organisation stays aligned with its stakeholder's needs and expectations, fulfils its strategic plan and objectives, makes the best use of resources and continually improves.

Review and action forms the final element of Plan-Do-Check-Act management cycles as described in section A.1.2 Plan-Do-Check-Act and facilitates continual learning, continual improvement and continual realignment with stakeholder expectations by creating a closed loop of management control. It must attempt to objectively take account of all available data giving due weight to evidence and resist making decisions based on a reaction to a single event which may not be statistically significant.

Review and action processes need to be carefully coordinated, structured and disciplined to ensure that they are effective and efficient in an attempt to make the performance of management review and action processes optimal.

Review and action covers the systematic review of all aspects of the organisation's, management's and the management system's performance as well as internal and external change. It reactively looks back on past performance and also proactively forward trying to anticipate the future and ensure that the organisation's operations remain equitably aligned with the needs and expectations of the stakeholders while making the best use of resources. This involves anticipating change in stakeholder requirements and behaviours such as trends in markets, competitor behaviours, structural and process innovation and proposed new legislation.

Review and action processes are normally conducted within a hierarchy of meetings and pre-meeting activities conducted at differing frequencies. Each element in the hierarchy should take account of the needs of other elements and the whole should feed into a top management review and action process.

Good data management can help with the scheduling, tracking, communication and transparency of review and action processes – refer to section E.4.2.1 Databases.

Review and action processes may be aided by the application of specific management tools and techniques – refer to section E.1.8 Management tools and techniques. These may typically include:

- Gap analysis
- How-how diagrams
- Performance indicators
- Profile graphs
- Prospect and/or risk register/database
- Radar chart
- Rag status reports
- Ranking and rating
- Relations diagram
- Strengths weaknesses, opportunities and threats analysis
- Tables

- Tree diagram
- Utility theory
- Value analysis

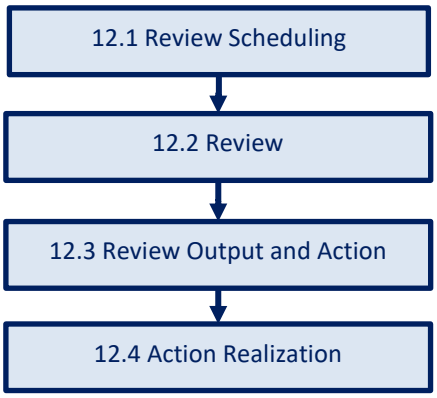


Figure 28: Review and Action Subsections

E.12.1. Review scheduling

< The organisation should periodically review and report on all significant management arrangements according to defined arrangements – refer to sections E.1.1 Foundation planning and E.2.5.2 Communication, consultation, participation and reporting. Review and its reporting should cover the performance of:

- The management system,
- Compliance with legislation,
- Alliance with stakeholder needs and expectations,
- Personnel,
- Commerce,
- Data,
- Matter and energy,
- Suppliers,
- Normal structures and associated normal processes fulfilling the purpose of the organisation,
- Contingency structures and processes,
- Change initiatives,
- Reactive investigation,
- Planned monitoring.

It is normally sufficient to only subject higher level management system documents to periodic review. Lower level documents review is normally triggered when changes occur to processes or the requirements of the process.

Summaries of performance under suitable subjects should be prepared to feed into management review and action meetings.

The need for a coordinated hierarchy of management review meetings is more likely within larger organisations to ensure that each meeting is effective and efficient with appropriate terms of reference. The design of this structure should facilitate the optimization of the overall review and action process of the organisation as a whole.

Meetings may be face to face or facilitated via telephone or IT conferencing.

E.12.2. Review

< The objective of management review is to consider individual and collective aspects of the performance of the organisation as well as its external environment to explore and agree actions that can be taken to improve the organisation's management system and processes and ensure that they take account of the changing external environment. Review should be both reactively and proactively focused – refer to section 0 Review and Action.

Management review topics are not distinct and may overlap during the conduct of reviews requiring cross-referencing when generating records. Individual reviews may be closely linked with planning processes and planned monitoring processes and are often integrated e.g. legislation and standards compliance and audits although the outputs are still fed into the broader main management review and action processes.

At any given time different aspects of the organisation's performance may be improving, steady or declining but cannot be fully known because the operations of an organisation are often complex, non-homogeneous and cannot be fully and accurately measured in real time. Organisations are also constantly reactively and proactively interacting with their external environment. Judgements on the organisation's performance should take account of key performance indicators and other data obtained from analysis, reactive investigation and planned monitoring – refer to section C.4.3.2 Indicators, 0 Reactive investigation – Events and 0 Planned monitoring.

For organisations managing potential threats from low frequency high impact events where direct performance data is usually limited they should be particularly vigilant regarding undetected organizational decline towards disfunctionality – refer to sections 0 Planned monitoring and E.11.1 Monitoring planning.

The frequency of periodic review of legislation and adopted standards may vary depending on the importance of the requirement, the likelihood of variations in performance (e.g. due to varying operation conditions) and the organisation's past performance, but all compliance obligations should be appropriately reviewed – refer to section E.1.5 Legislation and standards. See also section E.1.1 Foundation planning with respect to cyclic planning.

An organisation may wish to combine its reviews of compliance with voluntary obligations and legal requirements. In the event that the results indicate a failure to meet a legal requirement, the organisation should determine and implement the actions necessary to achieve compliance. This may require communication with the regulatory agency and agreement on a course of action to re-establish compliance with legal requirements. The outputs and outcomes of this process should be considered in the main management review and actions.

E.12.3. Review output and action

< It is important that meeting minutes are clearly and accurately recorded and action plans, where appropriate, agreed and approved to record required actions and facilitate monitoring of their completion.

Continual improvement and change involves making changes to the design and implementation of the management system to improve the organisation's ability to achieve conformity with the requirements of this MSS and meet its strategic plan, objectives and policy commitments. Typical issues that need to be considered include:

- Analysing the external and internal context of the organisation,
- Determining the needs and expectations of stakeholders,
- Taking preventive action to address opportunities and risks,
- Taking into account complaints and opinions of the stakeholders,
- Establishing objectives,
- Implementing operational controls and taking into consideration new technologies, methods or new data,
- Monitoring, measuring, analysing and reviewing performance,
- Conducting planned monitoring,
- Conducting reviews and taking action to improve and remain aligned with evolving stakeholder needs and expectations,
- Reacting to nonconformities and implementing corrective actions.

Although there may be value in improving individual elements of the management system, the intended outcome of planned actions and other structural and process changes, the organisation should focus on its overall performance and not just its elements in isolation. To achieve this, the improvement of any single element must be viewed with respect to the functioning of the whole organisation, which implies the need for cooperation and coordination across the organisation. Where conflicts are identified, they should be creatively resolved through the constructive engagement of all those responsible and relevant stakeholders.

The rate, extent and timescale of actions that support continual improvement should be determined by the organisation in light of its context, economic factors, and other circumstances. Performance improvement involves taking action related to the management of the organisation's aspects towards reducing adverse impacts or increasing beneficial impacts with respect to the various dimensions of the organisation's performance as judged individually by its stakeholders.

E.12.4. Action realization

< A computer database should be considered to track the progress of management action realization, including the delegation of an action to multiple sub actions, to make the current status of actions transparent.

Many actions involve significant change and should be managed as per section 0 Change.

Definitions

For the purposes of this management system specification, the following terms and definitions apply.

> *The beginning of wisdom is to call things by their proper name."*
> *— Confucius —*

Terms have as far as possible been defined to be generic and inclusive to support a holistic description of the management of any type or size of organisation. Many of the definitions relate things to a stakeholder perspective such that it becomes relativistic.

The definitions also provide consistent verbal and written language to communicate and conduct management across organisations of differing types and disciplines

This section of the MSS includes the following subsections:

- Definition of Acronyms
- Definition of Document Types
- Definition of General Terms

Appendix 4: Management Tools and Techniques also contains relevant definitions.

Definition of Acronyms

AI
Artificial intelligence.

ALARP
As low as reasonably practicable.

CEO
Chief executive officer.

CPD
Continual professional development.

CSR
Corporate social responsibility.

CQI
Chartered Quality Institute. A UK chartered professional body dedicated to the promotion of quality management.

IT
Information technology.

MSS
Management system specification – this document.

PPE

Personal protective equipment. Equipment worn by a person to provide personal protection to a part or all of the body.

RPE

Respiratory protective equipment. Equipment used by an individual to support or aid their respiration.

SMART

Specific, measurable, attainable, realistic and time-sensitive. SMART is a mnemonic guide used for setting objectives and key performance indicators (KPIs).

SPC

Statistical process control.

Definition of Document Types

Refer to section E.4.1 Management system structure.

The following documents although commonly existing as separate documents, they may exist integrated in a single document.

Checklist

A type of informational job aid used to reduce human error by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task.

NOTE 1: A basic example is the “to do list.” A more advanced checklist would be a schedule.

Contingency plan

A document(s) defining arrangements for circumstances where there has been a serious breakdown in normal core or supporting processes or structures with the objective of avoiding or mitigating further loss and restoring normality effectively and efficiently.

NOTE 1: Contingency plans may be referred to as crisis plans, emergency plans, disaster recovery plans, business continuity plans or goods recall plans etc. – refer to section C.7.2 Contingencies.

Document template

A document containing a structure that may be customised to meet the requirements of the circumstances.

NOTE 1: Document templates are maintained to aid the production of specific documents such as contracts, method statements and risk assessments. They help to ensure compliance with a uniform corporate style and the management system while also acting as a receptacle for accumulated good practice.

NOTE 2: Document templates differ from forms by being able to be customised.

Form

A document with a fixed non-customisable structure designed to receive data.

NOTE 1: Forms are maintained to facilitate process compliance with the management system and to generate records with a common structure.

Handbook

A type of reference document, or other collection of instructions, that is intended to provide ready quick reference.

NOTE 1: Handbooks may deal with any topic and are generally compendiums of information in a particular field or about a particular technique. They are designed to be easily consulted and provide quick answers in a certain area.

NOTE 2: The employee handbooks may be used to provide information and guidance to be followed by employees and contracted personnel in a straightforward format free of other aspects of the of the organisation's management system that are not relevant. The handbook may replicate aspects of the main management system such as policy statements but also include arrangements not covered elsewhere. An employee handbook avoids direct access to the management system as a whole but may usefully include references to it if the employee wishes to seek more information or elaboration.

Interface agreement

A document stating how two or more organisations will cooperate and coordinate activities to meet mutually agreed objectives.

NOTE 1: Where this is defined by one party only it is referred to as an interface statement.

Job description

A document defining key aspects of a role or post within an organisation or project typically covering:

- Job title
- Grade
- Purpose
- Organisation structure and position in the organisation
- Accountabilities and lines of reporting
- Duties
- General competence

Operation manual

A manual that records everything required to effectively, efficiently and safely operate an item or set of infrastructure.

NOTE 1: Operation manuals are often combined with maintenance manuals.

Policy statement

A document(s) expressing the organisation's or project's vision, values and commitment to achieving performance.

Process definition

A document(s) that defines the philosophy, rules and guidance for conducting an automated process or manual process for delivering a good and/or service.

NOTE 1: Process definitions are important documents that are maintained to control and guide major processes that comprise several sequential and/or parallel tasks. Process definitions typically reference and coordinate subordinate control and record documents and define the responsible persons. Process definitions also typically include project control documents that go under various names.

NOTE 2: The format of process definitions may vary but often include graphical representations of the series/parallel sequence of tasks displayed in 'swim lanes' or other graphical layouts.

Maintenance manual

A manual that records everything required to effectively, efficiently and safely maintain an item or set of infrastructure.

NOTE 1: Maintenance manuals are often combined with operation manuals.

Management manual

A document or collection of documents describing all or the upper part of the management system.

Management procedure

A document defining the management actions and responsibilities to control and guide core, supporting and contingency organisation and project processes.

Schedule

A document containing data in an orderly structure.

NOTE 1: A schedule is typically used for data that may need to be changed frequently and avoids the re-issue of larger controlled documents.

NOTE 2: A schedule may be part of a formal database.

NOTE 3: Typical applications of a schedule are shown in section E.4.1 Management system structure.

Standard or regulation map

A document in the form of a matrix that demonstrates how the elements of the standard or regulation correspond to the elements of the organisation's management system.

NOTE: A typical example is Appendix 9: Comparison with other Standards .

Training module

A document(s) defining the detailed arrangements for delivering a defined package of training and its assessment.

NOTE 1: The scope of a training module may include internally and externally delivered on-job or classroom based training including informal training such as 'toolbox talks'.

Work instruction

A document defining a system of instruction and guidance to control and guide work processes.

NOTE 1: Work instructions may specify good or service characteristics to satisfy requirements and are often contained in drawings, specifications, schedules, orders, patient prescription, etc.

NOTE 2: Work Instructions are used to provide detailed systematic instruction and guidance on how to correctly perform organisation or project tasks. They may also be used to control processes requiring a high degree of formality such as those that use a permit to work or permit for work.

Definition of General Terms

Access

Means or opportunity to approach or enter a place.

NOTE 1: A place may be physical or virtual.

Accountability

Obligation to report, explain and be answerable for lack of performance and breaches of authority and responsibility or duties. See also authority, responsibility, delegation and section E.2.4.3 Appointment.

NOTE 1: Being held accountable might result in disciplinary or other punitive action.

NOTE 2: Accountability closes the management control loop such that review and action results if an individual fails to perform or violates the management system, contracts, legislation or other defined requirements. See also sections E.2.4.8 Discipline and E.2.5.3 Management of conflict

Action

Process of doing something to achieve an objective.

Agility

Ability of structure to quickly change direction or reconfigure to meet new requirements or challenges.

Algorithm

Finite set of unambiguous instructions that, given some set of initial conditions, can be performed in a prescribed sequence to achieve a certain goal and that has a recognizable set of end conditions.

Analysis

Separation of an intellectual or material whole into its constituent parts for individual study. See also synthesis.

Arrangement

Plan and/or preparatory actions taken to meet future requirements.

As applicable

Applying or capable of being applied

As appropriate
Suitable for a particular person, condition, occasion, or place.

Aspect
Characteristic of an organisation's policy, asset, operation or event that has or may potentially have an impact on something valued by a stakeholder.

NOTE 1: Impacts may occur at local, regional and global scales, while they may also be direct, indirect or cumulative by nature.

NOTE 2: Aspects may include planned and unplanned events.

NOTE 3: The most important aspects of an organisation needing to be identified and managed are those significantly impacting the needs and expectations of stakeholders and typically include those with the potential to or actually impact the environment, people and the economy in both the short and long term.

NOTE 4: Examples of general organisation aspects are shown in Appendix 6: General Aspects of an Organisation.

Aspect and impact identification
Determining what aspects and impacts exist or are anticipated, their characteristics and where situated in space and time.

Note 1: Aspect and impact identification may be referred to as prospects and/or risks identification and essentially fulfils the same process as identifying opportunities and threats/hazards.

NOTE 2: Aspects and impacts identification is an essential prerequisite prior to conducting prospect and/or risk assessment.

Aspiration
Stakeholder desire, longing, aim or ambition. See also need.

Asset
Something that has value and is capable of being managed and/or traded. See also intellectual property.

NOTE 1: Examples of assets include legal entities, competence, knowledge, infrastructure, commodities, data, reputation etc.

Assurance
Set of activities intended to collectively establish confidence that stakeholder requirements will be met.

NOTE 1: A key aspect of assurance is the generation and retention of objective evidence which is readily able to be proactively monitored as covered in section 0 Planned monitoring.

NOTE 2: Assurance is often referred to as quality assurance, management assurance, systems assurance, risk assurance, financial assurance etc.

Atomic
Fundamental element of a structure.

Audit
Systematic, independent and documented process for objectively obtaining and evaluating evidence to determine the extent to which the audit criteria are fulfilled.

NOTE 1: An audit can be an internal audit (first party) or an external audit (second party) or external independent audit (third party). A bespoke audit can also be used reactively to determine how well an organisation's or project's structures and processes are functioning to assist with the investigation of an unplanned event.

NOTE 2: The audit scope may include aspects spanning multiple structures, processes and disciplines.

NOTE 3: An audit team may be one or more people and led by a qualified lead auditor supported by competent people appropriate to the audit scope, as necessary.

Authority
The assigned power or right to give orders, make decisions, and enforce obedience. See also accountability, responsibility, delegation and section E.2.4.3 Appointment.

Automatic process
Process that is capable of occurring without the need for external intervention.

Availability
The degree to which a person or structure is able to fulfil its purpose.

NOTE 1: it may be defined as the proportion of time a system is in a functioning state.

Behaviour
Way in which a person or something conducts itself.

Benchmarking
Process used to search for best practices.

NOTE 1: Benchmarking can be applied to strategies, tactics, operations, goods, services and any aspect of a management system typically shown in Appendix 6: General Aspects of an Organisation .

NOTE 2: Best practices can be found either within the organisation or within others. It usually means identifying organisations that are doing something in a very good way and then trying to emulate it.

NOTE 3: External benchmarking includes competitive benchmarking involving comparisons with how the organisation does things with its competitors and generic benchmarking involving comparing the organisation with organisations in unrelated sectors.

Best Available Techniques (BAT)

Processes that avoid or reduce emissions resulting from certain installations to reduce the impact on the environment as a whole and takes into account the balance between the costs and environmental benefits. See also Best Practicable Environmental Option (BPEO).

NOTE 1: Use of BAT is required by bodies licensing the major potentially polluting industries.

Best Practicable Environmental Option (BPEO)

Outcome of a systematic consultative and decision making procedure that emphasises the protection and conservation of the environment across land, air and water. See also Best Available Techniques (BAT).

NOTE 1: The BPEO process establishes for a given set of objectives, the option that provides the most benefits or the least damage to the environment, as a whole, at acceptable cost, in the long term as well as in the short term".

Brand

Trademark or distinctive name identifying a good or service or organisation.

Bribery

Process of giving money or gift(s) with the intention of altering the behaviour of the recipient.

Calibrate

Check, adjust, or determine by comparison with a standard.

Capital

Wealth in the form of money or other assets owned by a person or organisation or available or contributed for a particular purpose such as starting an organisation or investing.

NOTE 1: Capital embraces:

- Financial capital,
- Human capital,
- Manufactured capital,
- Natural capital,
- Social capital.

Certificate

Document serving as evidence or as written testimony, as of status, qualifications, privileges, or the truth of something.

NOTE 1: Commonly used to record personnel or an organisation achieving a recognised level of competence or recording compliance.

Chief executive

Highest-ranking corporate officer(s), executive(s) or administrator(s).

Classification

The result of assigning elements to defined categories.

NOTE 1: Classification is commonly performed to differentiate management topics, structures, processes etc. to aid understanding, communication, accounting and management of structures and processes.

Coincident indicator

Indicator that usually changes at approximately the same time as the organisation's or system's behaviour as a whole changes. See also lagging indicator and leading indicator.

Colour coded communication (CCC)

Adoption of standard defined colours to signify the significance of an aspect to aid communication.

NOTE 1: The traffic light colours are commonly used to indicate levels of significance or risk etc. As an example, refer to Appendix 3: Prospect and Risk Rating System Example.

Commerce

Social process of exchanging or purchasing of commodities.

NOTE 1: Commodities may include goods, services, ideas or any type of legal entity.

NOTE 2: A commercial action is normally agreed via a contractual process.

Commercial awareness

Knowledge of how the functionality of organisations fulfil their purpose, generate value and how the value can be traded whilst remaining financially viable.

NOTE 1: Business organisations aim to be profitable while organisations such as a charity just need to be financially viable.

Commercial responsibility

Characteristic of an individual or organisation that ensures their commercial processes are conducted ethically. See also social responsibility.

NOTE 1: The focus of commercial responsibility is on the stakeholders that collectively directly or indirectly fulfils the purpose of the organisation.

Common cause failure

Single failure or condition that affects the operation of multiple structures or processes that would otherwise be considered independent.

NOTE 1: Common cause failures undermine the benefits obtained from redundancy necessitating the introduction of diversity.

Communicate

The process of conveying information through the exchange of ideas, feelings, intentions, attitudes, expectations, perceptions or commands.

NOTE 1: Human communication is generally via speech, gestures, writings and behaviour but may also be via other means such as electromagnetic, chemical or physical phenomena.

NOTE 2: Communication may take place between organisms and machines.

Competence
Ability to perform a post, role or task to a required standard.

NOTE 1: Competence may include inherent and learned aspects, tacit knowledge, ability to apply explicit knowledge, as well as personal characteristics such as integrity, creativity and leadership etc.

Competence Base
The competence that an organisation has access to either directly within or indirectly outside the organisation.

Competence base is elaborated further in section A.1.1 Context of a Management System.

Condition
State of something or circumstances.

Confidentiality
Set of rules limiting access or places restrictions on certain types of data.

Configuration
The way the elements of a structure are arranged.

NOTE 1: Configuration may be critical to the effectiveness and efficiency of a structure and its associated processes. Refer to section E.5.4.4 Configuration.

Conflicting stakeholder
Stakeholder that has interests that does not or may not align with the organisation's purpose or objectives.

NOTE 1: Competitors and criminals typically have conflicting interests to the organisation.

Conformity
Fulfilment of a requirement. See also nonconformity.

Consciousness
Aspects of self that enables awareness of self and external things.

NOTE 1: Consciousness is nurtured by a good working environment and may be degraded by stress.

NOTE 2: The higher the level of consciousness of a person the more they will see themselves as part of their environment and likely to act for the common good.

Consciousness is elaborated further in section A.1.1 Context of a Management System.

Contingency
Provision for a possible event or circumstance.

Contingency process

Process which is initiated when a normal structure and/or normal process fails or a significant internal or external event has occurs requiring prospect enhancement and/or risk mitigation and the restoration of normal processes. See also core process and supporting process.

Contingency structure

Structure whose purpose is to host contingency processes.

Contract

Agreement entered into voluntarily by two or more parties with the intention of creating a legal obligation.

NOTE 1: A contract is normally written but may also be oral and may vary considerably in its complexity.

NOTE 2: The remedy for breach of contract can be damages or financial compensation.

NOTE 3: Contract law varies greatly from one jurisdiction to another.

Continual

Duration that occurs over a period of time, but with intervals of interruption.

NOTE 1: Continual is unlike continuous' which indicates duration without interruption. Continual is therefore the appropriate word use in the context of improvement.

Convention

Standard way, in which something is usually done, labelled or presented.

NOTE 1: Conventions may be defined for nomenclature, dimensional units for measurement, colour coding, traffic flow etc.

NOTE 1: Examples of a convention include Colour coded communication (CCC), the handedness of traffic flows passing on the left or right, standard nomenclature etc.

Cooperate

Work or act together willingly and agreeably to achieve an agreed objective.

Coordinate

Bring the different elements of a process, project or organisation into a harmonious effective and efficient relationship.

NOTE 1: Coordination becomes increasingly important as what is being coordinated becomes more complex and/or involves more parties.

Core process

Operational process that delivers a good or service to an external customer in return for a service or financial payment. See also supporting process and contingency process

NOTE 1: Core processes define the purpose of the organisation.

Corporate leadership

Corporate leadership is the directing individual or collective mind of the organisation exercised by the top management at the most senior level.

Corporate leadership is elaborated further in section A.1.1 Context of a Management System.

Correction

Transformation from nonconformity to conformity.

Corrective action

Process of rectifying a nonconformity. See also preventive action.

NOTE 1: Corrective action may include repairg, rework or adjustment but excludes disposition of the nonconformity and preventive actions. It includes the performance of contingency processes.

NOTE 2: Corrective action is a reactive action based on what has happened and/or the current situation.

NOTE 3: Corrective action and preventive action may be performed simultaneously following the analysis of the immediate causes and root causes of an event.

Refer to section E.9.2 Corrective and preventive action.

Cost benefit analysis

A systematic approach for estimating the benefits and costs associated with alternative options.

NOTE 1: Cost benefit analysis may be used to determine if an option is a sound investment/decision or to provide a basis for comparing projects. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits sufficiently outweigh the costs.

Covert

Not openly acknowledged or displayed. See also Overt.

NOTE: Covert may be associated with structures and processes that includes activities and management systems.

Creativity

Tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and creating things.

NOTE 1: Creativity is a prerequisite for innovation.

Crisis

A time of intense difficulty, following a major event, requiring an organisation to manage differently to the way than it does normally. See also emergency and disaster recovery.

NOTE 1: Crises require special contingency arrangements – refer to section E.8.2.2 Emergencies, Crises and Disaster Recovery.

Criteria
A standard of judgment or criticism; a rule or principle for evaluating or testing something

Cryptography
The art of protecting data by processing it (encrypting it) into an unreadable format, called cipher text.

Cryptography keys
A piece of data that determines the process output of a cryptographic algorithm or cipher.

NOTE 1: Without a key, the algorithm would produce no useful result.

Customer
Person or organisation that purchases or is the recipient of goods or services from another person or organisation.

Danger
Exposure to a harmful structure or process.

Data
Facts, statistics, or items of information.

NOTE 1: Data may include alphanumeric text, numbers, photographs, video, software etc.

NOTE 2: Data over its life cycle may be created, stored, accessed, processed, communicated, shared, replicated, encrypted, lost, corrupted, stolen or destroyed.

NOTE 3: Data may move in space up to the speed of light and exist in time over its life cycle.

Database
Structured set of data.

NOTE 1: A database typically is hosted by a computer but may exist on paper e.g. a card index.

Defense in depth
Coordinated use of multiple diverse risk barriers to protect the integrity of an asset or enterprise.

Define
State or describe exactly the nature, scope or meaning of that which is under consideration.

Delegate
Assign authority and/or responsibility to a subordinate person or group. See also authority, responsibility and accountability.

NOTE 1: Delegation may include making the person or team accountable.

NOTE 2: The person's authority, responsibility and accountability are not changed by delegating to a subordinate.

Delivery chain
Sequence of parties and processes that deliver goods and/or a services to the customers that ultimately use them. See also supply chain and value chain.

Design
Working out the form, fit or function of something.

Design principles
Principles on which the design is based.

NOTE 1: Design principles are established at the beginning of the design process and subjected to prospect and risk assessment.

Determine
Establish or find out.

Disaster recovery
The process that an organisation implements to recover from a disaster or other major negative event. See also crisis and emergency.

NOTE 1: Disaster recovery is a time of great difficulty requiring an organisation to manage differently to the way than it does normally. Special contingency arrangements are required – refer to section E.8.2.2 Emergencies, Crises and Disaster Recovery.

NOTE 2: Disaster recovery is also referred to as business continuity.

Diversity
Quality or state of having many different forms, types, ideas, etc.

NOTE 1: Includes the state of having people of different races, cultures or other characteristics in a group.

Document
Structure of data or for recording data. See also section Definition of Document Types.

NOTE 1: The structure's medium can be physical, electrical, magnetic, optical etc.

Due diligence
Process of investigating an organisation or person prior to completing a contract or making or confirming a decision. See also evidence based, evidence informed, prospect and/or risk based and prospect and/or risk informed.

NOTE 1: Performing due diligence may significantly contribute to decision making by enhancing the amount and quality of information available.

Duty
Obligatory tasks, conduct, service, or functions that arise from a person being appointed to a post, role or other postion of employment.

Economic
Of or relating to the production, development, and management of material wealth, as of a country, household, or business enterprise.

Ecosystem
Community of living organisms (plants, animals and microbes) in conjunction with the nonliving components of their environment (air, water and mineral soil), interacting as a system.

NOTE 1: These biotic and abiotic components are regarded as linked together through nutrient cycles and energy flows. As ecosystems are defined by the network of interactions among organisms, and between organisms and their environment, they can be of any size but usually encompass specific, limited spaces but can be the entire planet.

Education
Act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life or for work. See also training.

Effective
Extent to which structures and processes achieve the desired intention. See also efficient.

Efficient
Extent to which a structure or process makes the best use of resources. See also effective.

Emergency
A time of immediate danger requiring an organisation to manage differently to the way than it does normally. See also crisis and disaster recovery.

NOTE 1: Emergencies require special contingency arrangements to reduce risk with respect to the safety of personnel, other assets or the environment – refer to section E.8.2.2 Emergencies, Crises and Disaster Recovery.

Emission
The production and discharge of matter or energy from a structure hosting a process.

Enterprise
Any entity engaged in an economic activity, irrespective of its legal form.

Entity
Something with distinct and independent existence.

Environment
Surroundings in which an organisation operates. See also workplace.

NOTE 1: Surroundings include the local, regional and global entities and can include air, water, land, natural resources, bio-diversity and ecosystems, humans, and their interrelations.

Ethical
Morally correct. See also equitable.

Ethical behaviour
Behaviour that is in accordance with acceptable principles of right or good conduct in the context of a particular situation and is consistent with international norms of behaviour.

Employee
Individual in a relationship recognised as an employment relationship in national law or practice.

NOTE 1: Employee is a narrower term than worker.

Equitable
Fair, just, right and reasonable as judged by a consensus of stakeholders. See also ethical.

NOTE 1: Where a legally compliant win-win solution is not possible no stakeholder should lose unreasonably at the expense of the others.

Event
An unplanned significant change to a structure and/or process of interest to a stakeholder.

NOTE 1: The time span of an event is defined by the stakeholder.

NOTE 2: An event may have sub-events.

NOTE 3: stakeholders may define events differently according to their own perspective and may judge the impact(s) of an event to be adverse or beneficial.

NOTE 4: An event may have multiple diverse aspects and impacts i.e. affect different aspects of organizational performance as typically shown in Appendix 6: General Aspects of an Organisation.

NOTE 5: Events may be the precursor to change such as corrective action and/or preventive action – refer to section 0 Change.

Event classification
The classifying of events according to the potential or actual impact on the perceived stakeholder needs and expectations.

Evidence based
Decision, structure or process based on verified evidence. See also evidence informed, risk informed risk based and due diligence.

Evidence informed
Decision, structure or process that takes account of verified evidence. See also evidence based, risk based, risk informed and due diligence.

Expectation
Strong belief that something will happen or be the case in the future.

Expert
Competent person able to formally demonstrate specialist knowledge, skills and experience.

Expert committee
Committee of experts able to collectively provide expert advice and independent opinion to the directors and managers of an organisation.

NOTE 1: An expert committee works to terms of reference agreeable to or approved by the organisation's stakeholders.

Explicit knowledge
Knowledge that has been articulated, codified, and stored in certain media. See also tacit knowledge.

NOTE 1: Explicit knowledge can be readily transmitted to others e.g. the information contained in encyclopaedias or the management system documentation.

External audit (2nd party audit)
Audits conducted for an organisation on external organisations such as suppliers.

Facility
Place, building structures or equipment provided for a particular purpose.

NOTE 1: Facilities may be owned, leased or otherwise used by an organisation.

Failure
An outcome which does not satisfy a stakeholder. See also success.

Financial capital
Capital in the form of currency used by individuals and organisations to purchase goods and services.

Fitness
Acceptable condition.

For-cause
Legitimate, justified reason for taking a course of action.

NOTE 1: For-cause action is taken as a result of breach of contract.

Fractal
Seemingly irregular shape or structure formed by repeated subdivisions of a basic form, and having a pattern of regularity underlying its apparent randomness.

NOTE 1: Every part of a fractal (irrespective of its scale) is essentially a reduced size copy of the whole (a property called 'self-similarity'), and forms an organized hierarchy with its upper level and lower level counterparts.

NOTE 2: Typical examples in nature with a fractal shape or structure are coastlines, clouds, trees and mountains. Conceptual structures in management that have a fractal nature include Plan-Do-Check-Act management cycles where each of the four elements has a Plan-Do-Check-Act sub-structure. The concept of a system or process is still applicable during repeated zooming in until the atomic level is reached.

Fully integrated management system

Integrated management system that addresses the totality of the organisation's structures and processes with the exception of arrangements that need to be covert.

NOTE 1: The need to define covert management arrangements will necessitate one or more separate covert management systems.

Future proofing

Process of anticipating the future and attempting to make structures and processes resilient to future natural and manmade changes.

Gender equality

Equitable treatment for women and men.

NOTE 1: This includes equal treatment or, in some instances, treatment that is different but considered equivalent in terms of rights, benefits, obligations and opportunities.

Good

Item capable of being owned.

NOTE 1: Goods are structural and are capable of being physically or intangibly delivered to a consumer.

NOTE 2: Intangible goods (virtual) can only be stored, delivered, and consumed by means of media.

NOTE 3: Goods, both tangibles and intangibles, may involve the transfer of good ownership to the consumer unlike services that do not normally involve transfer of ownership – refer to service.

Goods and/or services delivery capability

Capability of structures and processes to deliver good(s) and/or service(s).

NOTE 1: Structures and processes may at any given time have a current goods and/or services capability that are less than the design capability.

Governance

All processes of governing, whether undertaken by a government, market or network, whether over a family, tribe, formal or informal organisation or territory and whether through laws, norms, power or language.

NOTE 1: Governance relates to the processes of interaction and decision-making among those involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions.

Harm
Undesired destruction or degrading of a structure.

NOTE: A structure may be physical or virtual e.g. physical injury or corruption of data.

Hazard
Something or circumstances with the potential to cause harm. See also threat, opportunity and stressor.

NOTE 1: Natural hazards typically include: Natural hazards Human diseases, Flooding, poor air quality, volcanic and seismic events, severe weather, wildfires, animal diseases etc. Non-natural hazrds are those created through the activities of humankind.

Health
Conditions of optimal functionality.

Highly significant
Significance that is critical enough to potentially cause major conflict between stakeholders and/or the organisation leading to organisation disruption.

Human capital
Stock of competency embodied in the ability to perform tasks that are used to create value.

NOTE 1: This capital is often accumulated through experience, education, training and nurture of consciousness.

Human error
Unintended action or decision leading to a deviation from a defined stakeholder requirement. See also human violation.

NOTE 1: Human error and its effects can be reduced through good structure, process and workplace design and the use of supporting aids such as checklists etc. – refer to sections E.7.1 Structure and process design and development and E.4.1 Management system structure.

Human violation
Deliberate deviation from a management system or other formally specified stakeholder requirement. See also human error.

NOTE 1: It may be a deviation from a legislative requirement or contract.

Identify
Establish the identity of something.

Ill health
Identifiable, adverse physical or mental condition arising from and/or made worse by a work activity and/or work-related situation. See also health.

Immediate cause

Final act in a series of provocations leading to a particular outcome or event, directly producing such result without the intervention of any further provocation.

NOTE 1: A train derailing because of a broken rail is an example of an immediate cause of an event.

Impact

Positive or negative effect on a person's, an organisation's or a stakeholder's objectives, needs, expectations or aspirations resulting from an aspect of the organisation.

NOTE 1: It includes effects on the organisation's policy, commitments and objectives.

NOTE 2: Objectives, needs and expectations include facets of performance such as those impacting humankind, environment and commerce.

Independent audit (3rd party audit)

Audits conducted by external, independent auditing organisations.

Indicator

Measureable representation of the condition or status of operations, management or conditions. See also key performance indicator and prospect and/or risk indicator.

Infrastructure

Entire system of facilities, equipment, and services that an organisation needs to function.

NOTE 1: Infrastructure includes buildings, workspaces, plant, utilities, equipment (including hardware but not software, which is data), and transportation, communication and information systems.

Initiative

Program or activity expressly devoted to meeting a particular objective.

Innovation

Process of translating an idea or invention into a new or improved structure, process, good or service.

NOTE 1: Innovation critically depends on the lively consciousness and creativity of the organisation's personnel and the management system, which should encourage participation and free flow of ideas between people and organisations.

Inspect

Look at a structure or process closely to assess its condition or quality or to discover any shortcomings.

Integrated management

Approach to management that seeks to understand and effectively direct every aspect of an organisation so that the needs and expectations of all stakeholders are equitably satisfied by the best use of all resources.

NOTE 1: 'direction' implies the use of a management system addressing the totality of the organisation and its interaction with stakeholders.

NOTE 2: 'stakeholders' and 'equitably' implies that an organisation should seek transparent win-win solutions where this is possible.

NOTE 3: Integrated management makes no distinction in its general approach to managing potential gain and managing potential loss as perceived by stakeholders.

NOTE 4: Integrated management recognizes no time, geographic, demographic or other types of boundary. It globally addresses future as well as current stakeholder needs, which naturally promotes sustainability. This implies that complete life cycles are addressed such as industry, organisation, plant, asset, good or employee (e.g. induction, development and retirement) etc.

NOTE 5: Best use of resources implies effective, efficient (waste minimization), agile and resilient processes as judged by a consensus of stakeholders.

NOTE 6: Integrated management implies that all elements of an organisation should add optimal value both individually and collectively i.e. acting as a whole and delivering a synergistic benefit.

NOTE 7: Integrated management allows uniformity and diversity to coexist harmoniously within an organisation. Generic approaches are used only if they add value.

Integrated management system

Management system that has a scope that includes two or more aspects of an organisation's performance that is capable of being managed by separate distinct management systems. See also fully integrated management system.

NOTE 1: As an example, it may cover two or more of the management of good or service quality, environment, and personnel health and safety performance.

NOTE 2: A management system may be fully integrated.

Integrity

Characteristic of a person of being honest and having strong moral principles, the state of being whole and undivided.

Intellectual property

Creations of the mind.

NOTE 1: Intellectual property includes music, literature, and other artistic works; discoveries and inventions; and words, phrases, symbols, and designs.

NOTE 2: Under intellectual property laws, owners of intellectual property are granted certain exclusive rights. Some common types of intellectual property rights are copyright, patents, and industrial design rights; and the rights that protect trademarks, trade dress, and in some jurisdictions trade secrets. Intellectual property rights are an intangible asset.

Internal audit (1st party audit)

Audit conducted for an organisation on its internal structures and processes.

Internal climate

The combination of an organisation's management system, organisation culture and competence base that collectively directs, guides, supports and nurtures the human behaviour that manages and participates in processes

Internal climate is elaborated further in section A.1.1 Context of a Management System.

International norms of behaviour

Expectations of socially responsible organisational behaviour derived from customary international law, generally accepted principles of international law, or intergovernmental agreements that are universally or near universally recognised.

NOTE 1: Intergovernmental agreements include treaties and conventions.

NOTE 2: Although customary international law, generally accepted principles of international law and intergovernmental agreements are directed primarily at states, they express goals and principles to which all organisations can aspire.

NOTE 3: international norms of behaviour evolve over time.

Interorganisational Network

Consensual arrangements of relationships between organisations motivated by an objective to improve performance.

NOTE 1: See also networks.

Investigation

Process of trying to find out the facts about something, to learn why and how something happened.

Just culture

Organisation culture that values the non-punishment of human errors but recognises that deliberate self-serving violations of the management system and other specified requirements that have been clearly communicated must be subjected to disciplinary processes that may result punishment. See also organisation culture.

NOTE 1: A just organisation culture leads to increased trust, more effective; communication and reporting leading to more effective and efficient functionality of the organisation through improved cooperation and coordination.

NOTE 2: A just organisation culture is ethical.

NOTE 2: Punishment organisation cultures and blame free organisation cultures are both ineffective.

Key performance indicator

Performance indicator that is specially selected to indicate a critical aspect of an organisation's or system's performance.

NOTE 1: Key performance indicators are commonly classified into leading indicators, coincident indicators and lagging indicators.

Knowledge

Awareness, consciousness, or familiarity gained by experience or learning of facts, truths, or principles. See also explicit knowledge and tacit knowledge.

Lagging indicator

Indicator that usually changes after the organisation's or system's behaviour as a whole changes. See also leading indicator and coincident indicator.

Leadership

Capacity to transform vision into reality.

NOTE 1: Leadership is not an explicit section of this MSS because although it is critically important to its adoption and successful implementation – it is only its successful implementation that can demonstrate effective leadership.

Leading indicator

Indicator that usually changes before the organisation's or system's behaviour as a whole changes. See also lagging indicator and coincident indicator.

Lean

Elimination of all non-value-adding structures and processes, and waste from the organisation, project or activity.

NOTE 1: The concept of 'Lean' can be applied to the overall organisation including its supply chain and delivery chain, which forms the overall value chain delivering the purpose of the organisation.

NOTE 2: Redundancy, diversity and segregation are sometimes necessary to improve prospect and/or reduce risk associated with structures and/or processes and are therefore value adding.

NOTE 3: Value should not be added for one stakeholder at the expense of another.

NOTE 4: Typical types of waste include:

- Non-value-adding structures or processes,
- Over-production,
- Waiting, queueing,
- Avoidable transportation
- Excess inventory
- Motion
- Costs of poor quality such as: scrap, rework and re-inspection.

Life cycle

Consecutive and interlinked stages of a structure or process from planning, design and creation through to demolition or reuse.

Likelihood

The chance that an event or situation will happen.

Maintain

Process directed at enabling or continuing a condition or situation.

NOTE 1: Maintenance sustains the integrity of a structure.

Malware

Software that is specifically designed to disrupt or damage a computer system.

Management

A responsible person's or group's thinking processes and administrative processes directed at achieving the purpose, needs, aspirations and objectives of an organisation, project or task through people. See also integrated management and top management.

NOTE 1: Management thinking and action may be aided by the use of management tools and techniques and the input of experts and specialists.

NOTE 2: A management process may be classified as strategic, tactical or operational, and also as a normal process, contingency process and change process.

Management control

Instrument or measure enacted to control personnel behaviour and actions. See also prospect and risk controls.

NOTE 1: Control may be exercised via administrative processes or automatic processes via the implementation of design features.

NOTE 2: Management systems are commonly used to consistently define and exercise management control.

Management system representative

Person appointed by an organisation to act as the principal contact and administrative coordinator of the management system.

Management system

Set of formally defined intentions, principles, rules and guidance used to systematically manage an organisation's structures and processes to achieve its objectives.

NOTE 1: A management system typically comprises elements such as policy statement, descriptions of management approach and philosophy, management procedure, job descriptions, work instructions, document template(s), forms, schedules, training modules, handbooks, contingency plans and process definitions. See also Definition of Document Types.

NOTE 2: A management system is normally formally recorded to facilitate its control and communication. A management system may be recorded and communicated using any suitable communication media or a mixture of them.

NOTE 3: A management system may operate on part or on all of the organisation's levels as well as projects and covers management planning, implementation of management controls, Reactive

investigation and planned monitoring, and review and action to support continual organizational learning and improvement.

NOTE 4: A management system is used by an organisation to control and guide its processes to consistently achieve the organisation's objectives effectively, efficiently and with agility. It is distinct from other non management systems within the organisation that it may direct or guide.

NOTE 5: A management system may be integrated to various degrees or fully Integrated.

Management system is elaborated further in section A.1.1 Context of a Management System.

Management tool

A structured conceptual methodology for supporting individual or collective management thinking, problem solving and/or decision processes.

NOTE 1: Management tools typically include thought structures, action steps, and representation formats to facilitate analytical (reductionist) and synergistic (holistic) management thought processes. See also section E.1.8 Management tools and techniques and Appendix 4: Management Tools.

Management under uncertainty

The management of gain and/or loss involving the uncertainty of their realization. Refer to prospect and risk management.

Manual process

Process directly operated by a person(s).

Manufacture

Making of goods by manual labour or by machinery, especially on a large scale.

Manufactured capital

Any physical means of production or means of protection beyond that which can be gathered or found directly in nature and often refers to goods and infrastructure controlled by an organisation. See also capital.

Market

An actual or virtual place where forces of demand and supply operate, and where purchasers and sellers interact (directly or through intermediaries) to trade goods, services, or contracts or instruments, for money or barter.

Marketing

Management process that identifies anticipates and satisfies customer and other stakeholder requirements profitably or financially in a viable way.

Measurement

Process to determine a value. See also indicator.

NOTE 1: Measurement involves the assignment of numerical values to objects or events to make definitive comparisons between observations.

NOTE 2: All measurements consist of three parts: magnitude, dimensions (units), and uncertainty.

NOTE 3: The science of measurement is called metrology.

Mission

Succinct description of the purpose of an organisation or project, why it exists and what it does to achieve its vision.

NOTE 1: The mission is the means of successfully achieving the organisation's vision.

Mitigate

Process of making something less severe or harmful.

Mode

A way or manner in which something occurs or is experienced, expressed, or done. See also configuration.

NOTE 1: A mode may be associated with the way a structure or process may succeed or fail e.g. success and failure modes analyses.

Monitoring

Process of determining the status of a structure or process.

NOTE 1: Monitoring may involve observation, data collection and checking of the progress and/or quality of structures and/or processes.

Natural capital

The stock of natural ecosystems that yield a flow of valuable ecosystem goods or services into the future.

NOTE 1: Since the flow of services from ecosystems requires that they function as whole systems, the structure and diversity of the system are important components of natural capital.

Near miss

Event that occurred in circumstances where there was a risk of significant loss that was avoided by good fortune and/or reactive response.

Need

Requirement of a stakeholder. See also expectation and aspiration.

Network

Natural or engineered set of links between living and non-living entities.

NOTE 1: The purpose of the interconnections may typically include the facilitation of communication and the transportation of energy and matter.

NOTE 2: See also interorganisational network.

Nonconformity

Non-fulfilment of a requirement. See also conformity, nonconformity disposition and observation.

Nonconformity disposition

Action to be taken to deal with an existing nonconforming structure to resolve the impact of the nonconformity.

Normal process

Process forming part of the intended functionality of the organisation and not a contingency processes. See also contingency process.

NOTE 1: Normal operational processes include core processes and supporting processes and are part of the regular functioning of the organisation.

Normal structure

Structure that hosts processes for delivering the primary purpose of the organisation or project.

Objective

Desired result to be achieved.

NOTE 1: An objective may be strategic, tactical or operational.

NOTE 2: An ideal objective is SMART.

Observation

The active acquisition of information from a primary source. See also nonconformity.

NOTE 1: Human observation employs the senses and may also involve the recording of data via the use of instruments.

Occupational stress

Harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the person. See also stressor.

NOTE 1: Job stress can lead to poor health and even injury.

NOTE 2: Occupational stress should not be confused with challenge that energizes people psychologically and physically, and motivates to learn new skills and master occupations. Stress is always harmful, while challenge can be beneficial.

NOTE 3: Stress impedes personnel productivity, creativity and innovation.

Operability

Ability of a system to function according to predefined operational requirements

Operation

Task type processes that are directly focused on delivering the purpose of an organisation on a day-to-day basis. See also strategy and tactic.

Operational process

Process that implements a tactical plan and directly delivers a good or service. See also strategic process and tactical process.

NOTE 1: Operational processes include core processes, supporting processes and contingency processes.

Opportunity

Something or a situation favourable for the attainment of an objective or a requirement. See also option, threat and prospect.

NOTE 1: Opportunities are a subset of possibilities.

NOTE 2: Opportunities may be revealed or unrevealed.

NOTE 3: The taking of an opportunity may potentially positively and negatively impact stakeholder needs expectations and aspirations, creating prospects and risks.

Option

Something or a path that has or may be chosen. See also opportunity.

Organisation

Organized body of people with a particular purpose.

NOTE 1: The essence of an organisation is consciousness, process and structure and are constantly interacting. See section A.6 Management principles.

NOTE 2: Organisations vary in size, purpose and the way they interact with other organisations and individuals.

NOTE 3: Organisations may include sub-organisations including those created for projects.

Organisation culture

Group shared values and perceptions of acceptable and unacceptable behaviours. See also just culture and organisation morale.

NOTE 1: Culture is a socially driven phenomenon where people conform to norms to gain the acceptance of the group and resulting benefits.

NOTE 2: Culture cannot be directly imposed by the leaders of an organisation – it establishes over time through the influence of a combination of leadership communication, example and compliance with the implemented management system. Behaviours that are encouraged or enforced over time influence and create the culture.

NOTE 3: A positive culture values justice, responsible questioning and equitably satisfying stakeholder needs and expectations.

Organisation culture is elaborated further in section A.1.1 Context of a Management System.

Organisation dynamics

The total internal human interaction within an organisation that determines its overall behaviour.

Organisation dynamics is elaborated further in section A.1.1 Context of a Management System.

Organisation governance

System by which an organisation makes and implements decisions in pursuit of its objectives.

NOTE 1: Organizational governance is implemented through the organisation's formal management system and is fully covered by this MSS.

Organisation morale

Overall outlook, attitude, satisfaction and confidence that employees feel at work. See also organisation culture.

NOTE 1: Morale includes employee's outlook, optimism, self-concept, and assured belief in themselves and their organisation, its mission, goals, defined path, daily decisions, and employee appreciation. Faith in self and faith in their organisation are both important factors in positive employee morale.

Organisation size

Measure of the size of an organisation based on the number of staff and/or financial criteria.

NOTE 1: Measures of organisation size are often defined by legislation applicable to the economic area in which the organisation operates.

NOTE 2: For applicability of the MSS clauses the following simple definition of organisation size solely in terms of number of staff shall be used – Micro 1 to 9, Small 10 to 49, Medium 50 to 249 and Large 250 upwards.

See section A.5.3 Organisation size automatic clause exemptions:

Organogram

Diagram that shows the structure of an organisation and the relationships and relative ranks of its parts and positions/jobs.

Outsource

Make an arrangement where an external organisation performs part of an organisation's function or process.

Overt

Performed or shown openly – plainly or readily apparent, not secret or hidden. See also covert.

Peer review

Objectives systematic review conducted by an independent competent person.

Performance

The degree to which an organisation, project, individual, structure or process meets objectives or stakeholder's needs, expectations or requirements.

NOTE 1: Performance typically covers goods and services quality, commerce, health, safety, environment, security and the care and nurture of personnel.

NOTE 2: Performance may be measured and expressed as data.

Performance is elaborated further in section A.1.1 Context of a Management System.

Performance indicator

Indicator that indicates an aspect of an organisation's or system's performance. See also key performance indicator and section E.4.3.2 Indicators.

Permit for work

Formal permission and controls, forming part of a system of work, to safely access an item of equipment or plant to perform a task.

NOTE 1: A permit for work only gives partial protection and generally excludes the work method hazards.

Permit to work

Formal permission and controls, forming part of a system of work, to safely carry out a task on an item of equipment or plant with respect to hazards emanating from the plant or equipment and the work method..

NOTE 1: Permits typically cover hazardous tasks such as hot working, confined spaces, electrical work etc.

Personal protective equipment PPE

Protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury.

Plan

Detailed formulation of a program to achieve an objective.

Plan-Do-Check-Act

Iterative four-step management method used to systematically manage organisations to control and continually improve structures, processes, goods and services. Refer to section A.1.2 Plan-Do-Check-Act.

Planned monitoring

Monitoring conducted systematically according to a management policy and/or schedule.

Planned monitoring findings

Results of the evaluation of collected evidence against monitoring criteria.

Policy

Organisation's formally defined intentions and direction defined by its top management.

Pollution
Contaminants that have been introduced into an environment that causes adverse change.

NOTE 1: Pollution can take the form of chemical substances or energy, such as noise, heat or light.

NOTE 2: The components of pollution can be either foreign matter or energies or naturally occurring contaminants.

NOTE: 3 Pollution may be prevented or reduced by source reduction or elimination, structure or process change, efficient use of matter and energy including substitution, reuse, recovery, recycling, reclamation and treatment.

Post
A defined appointed position within an organisation or project. See also role.

Practicable
Capable of being effected, done, or put into practice successfully – feasible.

Precautionary principle
Principle that the introduction of a new structure or process whose ultimate effects are disputed or unknown should be resisted.

NOTE 1: The principle is applicable to proposals to create novel structures and processes where there is little or no historical data or experience e.g. creating genetically modified organisms and food. Because the situation is novel it is not possible to conduct a meaningful prospect and risk assessment or even bound the risk

Preventive action
Action taken to reduce the likelihood of occurrence or reoccurrence of a nonconformity, undesired event or situation. See also corrective action.

Refer to section E.9.2 Corrective and preventive action.

Privacy
State of being free from unsanctioned intrusion.

Productivity
Measure of output per unit of input.

NOTE 1: Inputs include labour and capital, while output is typically measured in revenues and other gross national product components such as business inventories.

Principle
Fundamental truth or proposition that serves as the foundation for a system of belief or behaviour or for a chain of reasoning. See also section A.6 Management Principles.

Proactive

Creating or controlling a situation by causing something to happen rather than responding to it after it has happened. See also reactive.

Procedure

Specified way to conduct a process. See also management procedure.

NOTE 1: Procedures may be documented or undocumented.

Process

Activity or set of linked activities that transforms inputs into outputs. See also normal process core process, supporting process, contingency process, automatic process and manual process.

NOTE 1: Process transformation may take place within people, data, matter, energy, environment etc.

NOTE 2: Processes may be classified in a number of different ways that include:

- Strategic, tactical and operational process,
- Automatic process and manual process,
- Core process, supporting process and contingency process.

Process is elaborated further in section A.1.1 Context of a Management System.

Process variation

Variation that occurs when there are differences in multiple instances of the same process.

Program

Planned series of steps, projects or activities to be carried out.

Project

Planned piece of work that has a specific purpose and is temporary i.e. has a beginning and end.

NOTE: Projects may be conducted internally or externally to the organisation.

Prospect

Combination of the potential gain and the likelihood of its realization. See also risk, prospect and risk.

NOTE 1: Gain may be financial or any other perceived benefit.

NOTE 2: Prospect is conceptually negative risk. The preferred term is ‘prospect’.

Prospect and risk

Respective combinations of positive and negative consequences of a potential event or outcome and the associated likelihood of occurring.

NOTE 1: Prospect and risk are stakeholder judgements or perceptions of whether value is likely to be created or lost and may vary according to the stakeholder and are therefore relativistic and may even conflict with other stakeholders.

NOTE 2: Prospect and risk may be understood conceptually as the mirror of each other.

NOTE 3: Prospect and risk may coexist, may exist in close physical or virtual proximity and may be mutually dependent.

NOTE 4: Prospect and risk may be space or time dependent e.g. during a scenario or during the changes of the seasons etc.

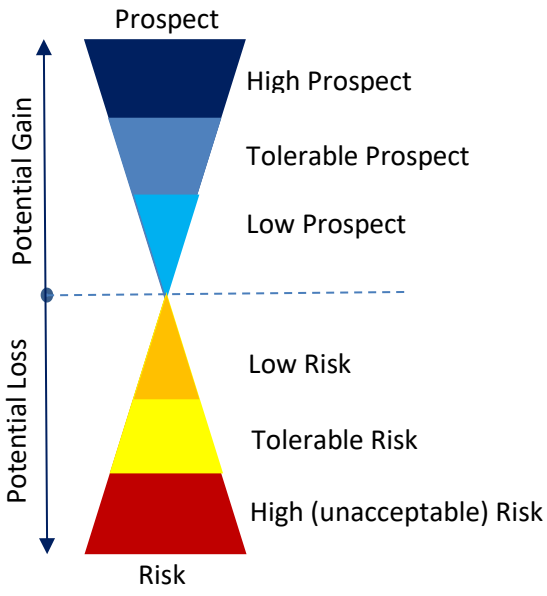


Figure 29: Prospect and Risk

NOTE 5: Estimates of prospect or risk may be expressed qualitatively or quantitatively. For a qualitative example, refer to Appendix 3: Prospect and Risk Rating System Example.

NOTE 6: The aggregation of prospect and risk is generally not meaningful and should only be done if the respective profiles are similar and expressed in the same units.

NOTE 7: High prospect combined with low risk is the most desirable.

Prospect and/or risk analysis and synthesis

Process used to identify and assess factors that may jeopardize the likelihood of an organisation, project or task satisfying the needs and expectations of stakeholders while making the best use of resources.

NOTE 1: Prospect and/or risk analysis normally comprises of two stages, identification followed by assessment, each employing different methodologies.

Prospect and/or risk assessment

Systematic process of evaluating the potential prospects and/or risks associated with an objective, activity or undertaking.

NOTE 1: Prospects and/or risks assessment is conducted following aspect and impact identification processes.

Prospect and/or risk barrier

A physical or virtual barrier intended to promote, prevent or control prospect and/or risk.

NOTE 1: Diverse barrier types used together decreases the chance of common mode failure and can also compensate for each other's weaknesses. Refer to defense in depth.

Prospect and/or risk based

Decision, structure or process that is based on the output from a reliable systematic prospect and/or risk assessment. See also prospect and/or risk informed, evidence informed, evidence based and due diligence.

Prospect and/or risk controls

Controls used to increase prospect and/or decrease risk.

NOTE 1: Prospect and risk controls may be engineered or administrative and include management controls.

Prospect and/or risk improvement

Increasing prospect and/or decreasing risk. See also acceptable prospect and acceptable risk.

Prospect and/or risk indicator

Measure used in management to indicate the level of prospect or risk of a structure or process. See also Appendix 4: 'Prospect Indicators' and 'Risk Indicators', and section E.4.3.2 Indicators.

Prospect and/or risk informed

Decision, structure or process that takes account of prospect and/or risk data. See also prospect and/or risk based, evidence based, evidence informed and due diligence.

Prospect and/or risk informed monitoring

Monitoring planning that is Prospect and/or risk informed.

Prospect and/or risk rating

Simple alpha or numeric scale used as a measure to represent the likelihood and impact components of gain and/or loss, and prospect and risk. Refer to Appendix 3: Prospect and Risk Rating System Example.

Prospect and/or risk register

Schedule used to record identified prospects and/or risks and associated data.

Prospect and risk management

Management involving uncertainty.

NOTE 1: Prospect and risk management is sometimes known as management under uncertainty and embraces the management of prospect and risk.

Prospect and/or risk: controlled

The prospect and/or risk remaining after prospect and/or risk controls have been applied. See also uncontrolled prospect/or risk and residual prospect and/or risk.

NOTE 1: If the prospect and/or risk controls fail the prospect and/or risk becomes the uncontrolled prospect and/or risk respectively, i.e. the situation without any prospect and/or risk controls applied. It is therefore important that prospect and/or risk controls receive appropriate planned monitoring which take into account their contribution to prospect and/or risk improvement and the uncontrolled prospect and/or risk.

Prospect and/or risk: residual

The prospect and/or risk remaining after prospect and/or risk controls have been applied and/or the uncontrolled prospects and risks been assessed as acceptable and not requiring additional prospect or risk controls.

Prospect and/or risk: uncontrolled

The prospect existing before prospect controls are applied. See also controlled prospect, controlled risk and uncontrolled risk.

Prospect: acceptable

A prospect that is either a high prospect or a tolerable prospect. See also acceptable risk.

Prospect: high

Prospect that significantly exceeds a tolerable prospect.

NOTE 1: A high prospect is the ideal but may not be realizable because of market competition or stakeholder resistance.

Prospect: tolerable

Prospect that is sufficient to contribute net value to the organisation or project directly or in combination with other prospects. See also tolerable risk.

Prospect: unacceptable

Prospect that is less than tolerable prospect and fails to make a net contribution of value to the organisation or project.

NOTE 1: Unacceptable prospects collectively lead to an organisation or project being unsustainable.

Purpose

Reason for something existing.

NOTE 1: Structures and processes have a purpose and it is its fulfilment that can add value individually and collectively with respect to stakeholders.

NOTE 2: Purpose may be time limited.

Quality

Degree that the totality of the characteristics of a structure or process satisfies the needs and expectations of a customer or other stakeholder.

NOTE 1: Quality may be required to be delivered continuously, continually or occasionally depending on the purpose of the organisation, good or service.

NOTE 2: Prospect and/or risk controls may be required to assure the continuity of quality.

NOTE 3: Structures and processes include goods and services supplied internally or externally.

Reactive

Responding to an event, problem or situation when it occurs instead of doing something to prevent them. See also proactive.

Reactive investigation

Investigation triggered by an event, problem or situation with the objective of understanding why and what happened to correct the situation and prevent reoccurrence if practicable.

Reconcile

Cause to coexist in harmony, make or show to be compatible.

Record

Physical or virtual data constituting a piece of evidence about the past.

NOTE 1: Records may relate to structures, processes and events within or related to the organisation. See section E.4.2.9 Records.

Redundancy

Replication of structures and processes to increase prospect or reduce risk.

Relativistic

Varying according to the observer.

NOTE: Relativistic implies that characteristics will not be universal or absolute and may even conflict e.g. needs, expectations, judgements etc. Consequently, prospect and risk are relativistic according to the stakeholder.

Reliability

Ability of a structure or process to perform as required under stated conditions for a specified time.

Remanufacture

Refurbish a used product by renovating and reassembling its components.

Repair

Restoration of something that is broken, damaged or not working correctly, back into good condition or able to work again.

Repairability

The degree that something is capable of being repaired.

Requirement

Stated, implied or mandatory need or expectation. See also conformity and nonconformity

Resilience

Ability of an organisation, structure or process to effectively and efficiently respond to and/or quickly recover from an event or change in its internal or external environment.

Responsibility

A duty or obligation to satisfactorily perform and/or comply with defined requirements. See also authority, accountability, delegation and section E.2.4.3 Appointment.

NOTE 1: Requirements may typically be defined within a management system, contract or legislation.

Resource

Stock or supply of personnel, money, data, energy, materials, suppliers, and other assets that can be drawn on by a person or organisation to function effectively. See also capital and waste.

Review

Individually or collectively formally examine or assess a structure or process with the possibility or intention of instituting change if necessary.

Risk

Combination of the potential loss and the likelihood of its realization. See also prospect, prospect and risk, and precautionary principle.

NOTE 1: Negative consequences may include any types of actual or perceived loss or realised threat such as harm to personnel, the environment, commerce, data, suppliers or any other asset structure or process.

NOTE 2: Risk is conceptually negative prospect.

NOTE 3: Loss is that perceived by the stakeholder.

Risk assessment

Process of evaluating the risk(s) arising from a hazard(s) taking into account the adequacy of any existing controls and deciding whether or not the risk(s) is acceptable.

Risk management
Refer to prospect and risk management.

Risk: acceptable
A risk that is either a low risk or a tolerable risk. See also acceptable prospect.

Risk: low
Acceptable risk is a range of risk extending from a negligible amount of risk and including a low amount of risk.

Risk: tolerable
Tolerable risk is one that exceeds a broadly acceptable risk, is less than an unacceptable risk and is undertaken only if a benefit is desired. The risk is tolerable only if risk reduction is impracticable or if its cost is grossly disproportionate to the risk improvement gained i.e. the risk must be reduced "as far as reasonably practicable" (ALARP). See also tolerable prospect.

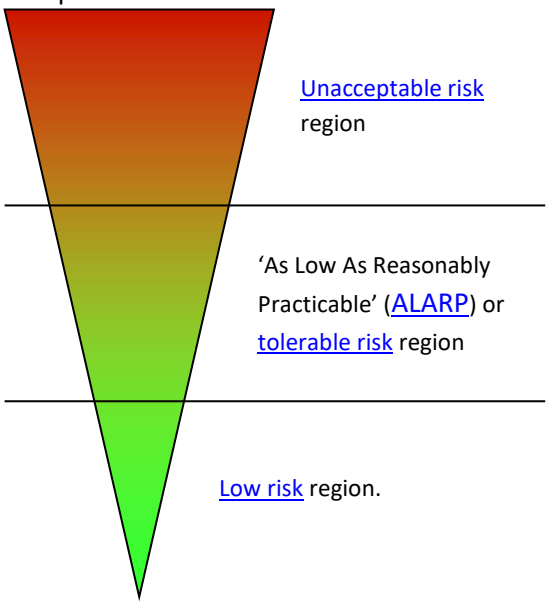


Figure 30: Risk Acceptance

Risk: unacceptable
Unacceptable risk is one which cannot be justified save in extraordinary circumstances. See also unacceptable prospect.

Robust
Performs well not only under ordinary conditions but also under unusual conditions that challenge its design assumptions.

Role
A defined personnel responsibility or function within an organisation or project not directly linked to the organisation structure. See also post.

NOTE 1: A personnel role is generally additional to appointment to a post e.g. appointment as a first aider or a fire warden.

Root cause
Atomic initiating or contributory cause of a causal chain that leads to an event, outcome or effect of interest to a stakeholder.

NOTE 1: Commonly, root cause is used to describe a point in the causal chain where an intervention could reasonably be implemented to change an undesirable outcome.

NOTE 2: A root cause (e.g. inadequate training) may be shared by several outcomes of interest to a stakeholder. Hence, preventive action is often initiated in parallel with corrective action.

Root cause classification

The classifying of root causes according to the aspects that affect or influence the functionality of the organisation.

NOTE 1: Other dimensions of classification may include the reason the management system was not followed e.g. human error or human violation and their sub classifications.

Royalty free

The right to use copyrighted material or intellectual property without the need to pay royalties or license fees for each use or per volume sold, or some time period of use or sales.

Safety

The state of not being dangerous or harmful or where the risk of harm is deemed not to be significant.

Security

The degree of resistance to, or protection from, harm.

NOTE 1: Security applies to any vulnerable and valuable asset, such as a person, dwelling, community, nation, or organisation.

NOTE 2: Loss of data security may occur via loss of confidentiality, integrity, and/or availability.

Segregation

Action or state of setting someone or something apart from others.

NOTE 1: May be adopted to increase prospect and/or reduce risk.

Service

Action of helping or doing work for someone.

NOTE 1: Service is dynamic and delivered over a period of time unlike goods that are structural and may be transferred instantly.

NOTE 2: A service may be started, stopped or continued but once supplied a defective service cannot be returned like goods – refer to good.

Service mark

A trademark that is used in connection with services.

NOTE 1: Organisations use service marks to identify their services and distinguish them from other services provided in the same field.

NOTE 2: Service marks consist of letters, words, symbols, and other devices that help inform consumers about the origin or source of a particular service.

Significant

Level likely to impact a need, expectation, aspiration or objective important to a stakeholder. See also highly significant

Social capital

Value added to various aspects of an organisation by human relationships, and is generally referred to as the value of connections within and between social networks. See also capital.

Social dialogue

Negotiation, consultation or exchange of information between or among representatives of governments, employers and workers, on matters of common interest relating to economic and social policy.

Social responsibility

Responsibility of an organisation for the impacts of its decisions, structures and processes on society and the environment through transparent and ethical behaviours that:

a) Contributes to sustainable development, including health and welfare of society,
b) Takes into account the needs and expectations of stakeholders,
c) Is in compliance with applicable legislation and consistent with international norms of behaviour,
d) Is integrated throughout the organisation and practised in its relationships.

Software

Programs and other operating data used by a computer.

Sphere of influence

Range/extent of political, contractual, economic or other relationships through which an organisation has the ability to affect the decisions or activities of individuals or organisations.

NOTE 1: The ability to influence does not, in itself, imply a responsibility to exercise influence.

Stakeholder

Any individual, group or organisation that can affect, be affected by or believe itself to be affected by the organisation's existence, assets or activities. See also Conflicting stakeholder.

NOTE 1: Typically, Internal stakeholders comprise employees, managers and directors and external stakeholders comprise contractors, neighbours, competitors, shareholders, bankers, partners, insurers, pressure groups, trade unions, society, government, regulators, suppliers and customers. A stakeholder may exist in more than one of these classifications and therefore may simultaneously be both an internal and external stakeholder.

NOTE 2: A stakeholder may exist globally and may even be as yet unborn. The interests of the latter are usually shared by the living stakeholders and exercise power on their behalf.

NOTE 3: The nature of the organisation's relationships with its stakeholders varies according to each stakeholder's needs, expectations, aspirations, the potential for conflicts of interest, the ability to exercise power, their awareness and ability to understand the organisation's operations and their values and morality.

NOTE 4: Stakeholders, each from their own perspective, may be impacted by the organisation's structures and its processes including their benefits and risks.

Stakeholders are elaborated further in section A.1.1 Context of a Management System.

Stakeholder engagement
Activity undertaken to create opportunities for dialogue between an organisation and one or more of its stakeholders, with the aim of improving the making of evidence informed and evidence based decisions.

Statistical process control
Method of quality control that uses statistical methods.

NOTE 1: SPC is applied to monitor and control a process to ensure that it operates at its full potential such that as much good is made as possible with a minimum (if not an elimination) of waste.

NOTE 2: SPC can be applied to any repetitive process where the "conforming good" (good meeting specifications) output can be measured. SPC is typically applied in mass manufacturing.

Strategic process
Processes that establish a strategy. See also tactical process and operational process.

NOTE 1: The objective of strategic processes is to determine which potential organisation purposes are worth pursuing and capable of being accomplished.

Strategy
A logically structured plan or method for achieving long-term objectives. See also strategic process

NOTE 1: Strategy and policies are needed to ensure that the organisation's purpose, vision, mission and values are accepted and supported by the stakeholders.

Stress
Adverse reaction people have to excessive pressures or other types of demand placed on them.

NOTE 1: Stress is caused by the overloading of the nervous system and its inability to recover. It has an adverse effect on human consciousness

Stressor
Physical, psychological, or social force that puts real or perceived demands on the body, emotions, mind, or spirit of an individual. See also occupational stress.

Structure
Time independent entity made up of elements.

NOTE 1: Structures may be natural or human-made and comprises one or more of people, data, matter, energy, environment etc. and are applicable to organisations and projects.

NOTE 2: Structures host processes (dynamics).

Structure is elaborated further in section A.1.1 Context of a Management System.

Structure and/or process definition

Description of a structure and associated process containing all significant data regarding its life cycle to satisfy the needs and expectations of stakeholders. Refer to section E.7.1.1 Structure and process definition.

Structure and/or process owner

Formally appointed person responsible for the operation, maintenance and change of a structure and/or process.

Social responsibility

Characteristic of an individual or organisation that ensures that all processes are conducted ethically with respect to society as a whole. See also commercial responsibility.

NOTE 1: The focus of social responsibility embraces all stakeholders' needs and expectations that may be impacted by the organisation and is a broader responsibility than commercial responsibility.

Source of benefit and/or harm

Something with the potential to cause an outcome which is desirable and/or undesirable with respect to a stakeholder. See also hazard.

Success

An outcome which satisfies a stakeholder. See also failure.

Supplier

Individual or organisation that provides a good and/or a service.

Supply chain

Sequence of parties and processes that provide goods and/or a services to the organisation. See also delivery chain and value chain.

Supporting process

Process that supports an organisation's core processes and does not directly deliver the organisation's purpose e.g. the delivery of goods and services.

Sustainability

The ability to endure.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

NOTE 1: Sustainable development is about integrating the goals of high quality of life, health and prosperity with social justice and maintaining the Earth's capacity to support life in all of its diversity. These social, economic and environmental goals are interdependent and mutually reinforcing.

Sustainable development can be treated as a way of expressing the broader expectations of society as a whole and is achieved by taking an integrated approach to management.

Synergy

The interaction or cooperation of two or more entities (structures and/or processes) to produce a combined effect greater than the sum of their separate effects.

Synthesis

Combining of the constituent elements of separate material or abstract entities into a single or unified entity. See also analysis.

System

Set of elements forming a connected whole.

NOTE 1: A system is structural in nature.

System of work

Component of a management system that defines how a process shall be conducted or specific conditions that restrict permitted activity.

Permits for work or permits to work are common instruments of systems of work commonly referred to as safe systems of work.

Systematic

Performed according to a fixed plan, defined methodology or system.

Tacit knowledge

Knowledge that is difficult to transfer to another person by means of writing it down or verbalizing. See also explicit knowledge

NOTE 1: For example, stating to someone that London is in the United Kingdom is a piece of explicit knowledge that can be written down, transmitted, and understood by a recipient. However, the ability to speak a language, use algebra, or design and use complex equipment requires all sorts of knowledge that is not always known explicitly, even by expert practitioners, and which is difficult to explicitly transfer to users.

Tactical process

Processes that directly implement strategy, planned and ad hoc activities meant to deal with the demands of the moment, and to move from one milestone to other in pursuit of the overall goal(s). See also strategic process and operational process.

NOTE 1: In an organisation, strategy is generally decided by the board of directors, and tactics by the department heads for implementation by the junior managers and employees via operational processes.

Tactic

See tactical process.

Taxonomy
Hierarchical collection of categories used to organize information.

Tender
Written or formal offer to supply goods or services for an agreed price.

Test
A process intended to establish the quality, performance, or reliability of a structure or process, especially before it is taken into widespread use.

Teleworking
Work flexibility arrangement under which an employee performs the duties and responsibilities of a post or role, from an approved worksite other than the location from which the employee would otherwise work.

NOTE 1: Teleworking allows an employee to perform work, during any part of regular paid hours at an approved alternative worksite (e.g. home or telework center). It excludes any part of work done while on official travel or mobile work.

NOTE 2: Teleworking is facilitated by the use of home computers, telephones, etc., to enable a person to work from home while maintaining contact with colleagues, customers, or a central office.

Thinking process
Process using the conscious mind to produce ideas, decisions, and memories.

Threat
Something or a situation that has the intention of causing harm or behaving in a way that could cause harm. See also hazard and opportunity.

NOTE 1: Threats may include competitors who may have conflicting objectives. More malicious threats may come from individuals or organisations with fundamentalist ideologies or from people who are mentally deranged.

NOTE 2: Threats normally emanate from an intelligent conscious source while hazards are passive and non-reacting to defenses.

Top management
Person(s) with the responsibility for directing and guiding an organisation at the highest management level.

Traceability
The ability to verify the history, location, or application of an item by means of documented recorded identification.

Trademark
Symbol, word, or words legally registered or established by use as representing a company or product. See also service mark.

Training

Acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific competencies. See also education.

Transparency

Situation where commercial and other activities are done openly without secrets, so that people can trust that they are fair and honest.

Uncertainty

State, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.

Validation

Formal assurance processes that provide the required level of confidence, through the provision of objective evidence, that a system, good or service delivers or is capable of delivering its intended purpose or functionality. See also verification

NOTE 1: Validation is about whether the characteristics of something deliver its purpose when required. Failing to effectively validate something increases the likelihood that its structure and/or functionality will not align with what was intended.

NOTE 2: The process of validation can be carried out under realistic use conditions or within a simulated use environment.

Value

Regard that something is held to deserve; the importance or preciousness of something, general principles and beliefs that are important to an individual or group.

NOTE 1: Value can be positive or negative, and can motivate and demotivate organisation behaviours.

NOTE 2: Values may be held individually and collectively and affect decisions and behaviour and is an element of organisation culture and stakeholder culture.

NOTE 3: The general value of a good or service is that which is perceived by a consensus of the relevant stakeholders but may also be defined relative to an individual.

NOTE 4: Organisation objectives need to embrace creating value and retaining value in a coherent joined up way.

Value chain

Entire sequence of activities or parties that provide or receive value in the form of goods or services. See also lean, supply chain and delivery chain.

NOTE 1: Parties that provide value include suppliers, outsourced workers, contractors and others.

NOTE 2: Parties that receive value include customers and other stakeholders.

Vector

Quantity that has magnitude and direction.

NOTE 1: It is commonly represented by a directed line segment whose length represents the magnitude and whose orientation in space represents the direction e.g. prospect or risk. Refer to Appendix 3.2 Prospect and risk rating matrices and scales.

Verification

Formal process of confirming that data or an assertion is true through the provision of objective evidence. See also Validation.

NOTE 1: Verification is about whether data or stated information is true or false. Failing to effectively verify something increases the likelihood that it is false or untrue.

NOTE 2: Examples of verification may typically include:

- Confirming whether or not a good or service complies with a regulation, requirement, specification, or imposed condition,
- Confirming recorded data corresponds to the actual test measurements made,
- Checking that a design brief accurately reflects the expressed needs and expectations of a customer or other stakeholder,
- Confirming whether or not an applicant for a job or for a service such as a loan is providing a true statement of fact,
- Checking whether a person has the required certificated competences to perform or participate in a process.

NOTE 3: Failure of verification processes may impact the outcome of validation processes by failing to identify inputs that are not true.

Vision

Outline of what the organisation wants to be, or how it wants the world in which it operates to be.

NOTE 1: It is a long-term view and is focused on the future.

NOTE 2: It can be emotive and a source of inspiration.

Waste

Resource that does not become, contribute to or support the desired output of a process.

NOTE 1: Waste is reduced by making structures and processes more efficient by improving their design – refer to lean.

Waste controls hierarchy

A priority of controls that are applied to minimize waste generation and its subsequent impacts.

NOTE 1: The aim is to extract the maximum practical benefits from goods and to generate the minimum amount of waste.

NOTE 2: The proper application of a waste controls hierarchy helps to prevent emissions of greenhouse gases, reduces pollutants, saves energy, conserves resources, create jobs and stimulate the development of green technologies.

See also section E.5.6 Waste and emissions.

Welfare
Provision of structures and processes to support human well-being.

NOTE 1: Basic welfare provisions typically include toilets, places to eat, washing facilities, storage for personal possessions and spare clothing etc.

NOTE 2: Mental welfare is nurtured and promoted by guarding against personnel stressors caused by the design and operation of the work environment, structures and processes.

Whistleblowing
Process of making a disclosure of a suspected wrongdoing in the interests of stakeholders.

Worker
Person who performs work, whether an employee or someone who is self-employed.

Workplace
Physical location(s) in which work is conducted under the control of the organisation.

NOTE 1: Critical characteristics of the workplace environment include lighting, temperature, humidity, noise, weather, cleanliness, welfare arrangements, other workers, general public, access to support and information.

Bibliography

See also Appendix 9: Comparison with other Standards.

1 ISO/IEC 2012 Annex SL (normative) Proposals for management system standards, Appendix 3.

2 ISO9001:2015 CD Quality management systems – 10 September 2013.

3 ISO14001:2015 CD2 Environmental management systems – 22 October 2013.

4 BS OHSAS 18001:2007 Occupational health and safety management systems.

5 ISO 26000:2010 – Guidance on social responsibility.

6 ISO/IEC 27001 – Information security management.

7 ISO/IEC 27002 – Information technology – Security techniques – Code of practice for information security controls

8 ISO 31000:2009 Risk management — Principles and guidelines.

9 ISO 55001:2014 - Asset management - Management systems – Requirements

10 PAS99:2012 Publicly available specification – Specification of common management system requirements as a framework for integration.

Index

See also 'Definitions' section.

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Revison Schedule

Revision	Change
2014	Original issue.
2023-01-01	Definitions extended to include: repair, repairability. Management Principles removed. Instead, they were extended and defined in the IMC document: Integrated Management Definition and its Elaboration.

Appendices

Appendix 1: Compliance Scoring System

1.1 Compliance factor

For each audited requirement in the standard, that is applicable to the organisation, provide a score from 0 to 1 based on Table 3: Compliance factor.

A proportion of the factor can be allocated if the condition is partially satisfied in situations where the condition is partially satisfied across some aspects of the organisation or perhaps only for some aspects of performance such as health and safety or environment etc. For example, a fully satisfied level could result in a score of 0.8 if fully satisfied but say 0.77 if it was partially satisfied. No credit can be given above the partially satisfied level.

The highest-level score that can be given is where part or all of a defined degree of compliance is satisfied and every lower condition is satisfied.

Score	Observed Progress
1	For a period of two years, monitoring has demonstrated full compliance with management arrangements and there has been no reports of undesired events (including near misses) related to the 'issue'.
0.9	Experience is demonstrating that the 'issue' formal arrangements are delivering effective' efficient and agile processes. The management of the 'issue' is fully integrated with the management of other interacting issues.
0.8	The 'issue 'controls have been formally implemented in all respects including confirmation of related personnel competencies.
0.7	The management system containing the 'issue' controls has been formally issued.
0.6	Staff has been briefed on the new or changed 'issue' controls.
0.5	The 'issue' controls and/or guidance form part of a draft management system and appear to be suitable and sufficient.
0.4	Planning for the 'issue' has been completed and controls agreed.
0.3	Planning of the 'issue' is in progress.
0.2	Resource has been allocated for planning to address the 'issue' but has not yet started.
0.1	Responsible manager is aware of the relevance of the 'issue' but resource has so far not been allocated to plan to address it.
0	Responsible manager has no awareness of the relevance of the 'issue' to the organisation

Table 3: Compliance factor

1.2 Compliance score

The compliance score (a number between nought and one) is calculated by summing the scores for each of the 12 elements of the standard and dividing by 12. Each element score is obtained by summing the subordinate factors awarded divided by the number of factors. Further subsections are calculated in the same way. Refer to Figure 31: Compliance Score Computation Example.

1.3 Minimum and maximum scores

The maximum and minimum scores are simply the maximum and minimum factors awarded respectively for each of the 12 elements of the standard and for the standard as a whole.

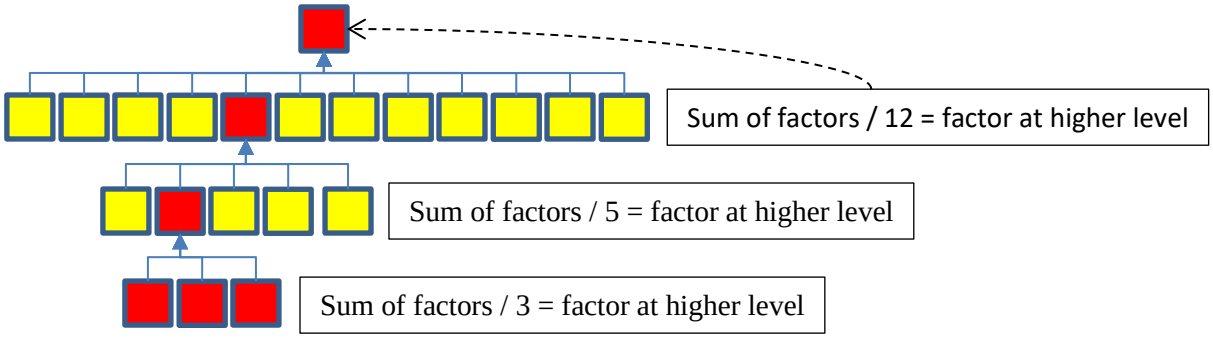

Figure 31: Compliance Score Computation Example

Appendix 2: Classification of Structures and Processes Example

This appendix supports sections E.1.6.2 Classification of structures and processes, 0 Planned Monitoring, E.9.1 Change management lifecycle and E.10.1.3.1 Event classification

Classifying structures according to the degree that they have the potential for loss and gain helps an organisation or project to systematically apply appropriate management control. Any classified structure or process requires a defined level of competent manager, rigor of prospect and risk assessment, and monitoring etc. The following table is an example of a system for classifying structures and processes.

Table 4: Classification of structures and processes example

Class	Potential impact rating See Appendix 3: Prospect and Risk Rating System Example	Scope of Prospect and Risk Assessment and Management Control	Planned Monitoring
High	5 or 6 **OR** 3 or 4 if structures and processes are complex or contain novel aspects.	Rigorous prospect and risk assessment required that assesses uncontrolled and controlled/residual prospect and risk. Formal briefing to be given by the line manager and acknowledged by workers.	Monitoring of prospect and risk controls that is appropriate to the consequence of the controls failing.
Medium	3 or 4 if structures are simple and processes contain no novel aspects. **OR** 1 or 2 if structures and processes are complex or contain novel aspects.	Supervisor may make use of generic risk assessments if applicable. Supervisors are required to formally approve prospect and risk assessment and confirm applicability of generic prospect and risk assessments.	Routine monitoring.
Low	1 or 2 if structures and processes are simple containing nothing novel.	Workers may make use of generic risk assessments if applicable. Worker is required to formally confirm applicability of generic risk assessments. Competency of worker is used as principal control.	Principally self-monitoring by the worker.

Appendix 3: Prospect and Risk Rating System Example

This appendix supports sections E.1.6.5 Prospect and risk improvement and 0 Planned Monitoring.

Prospect and risk rating methodologies are simple methods for estimating prospect and risk. However, they are simplistic and should only be applied where appropriate using sensible judgement, available experience and data. They are not a substitute for more rigorous or specialist methodologies which may be applicable in particular circumstances and may be a stakeholder requirement – refer to section **Error! Reference source not found.** Prospect and risk assessment planning. Expert advice should be consulted regarding the appropriateness of the application – refer to section C.2.3 Provision of expert advice and assistance.

This methodology may be applied individually or within a team and helps to promote debate, cooperation and sharing of experience and judgements.

This methodology comprises two principal steps – estimation of the likelihood and magnitude of the event followed by combining the two into an estimate of prospect or risk. These stages are described in the following two subsections:

- 3.1 Universal likelihood and severity scales,
- 3.2 Prospect and risk rating matrix and scale.

Two additional subsections describe how this process may be used to introduce prospect and risk control, and to record the data in a structured prospect and risk register:

- 3.3 Prospect and risk control,
- 3.4 Prospect and risk register structure.

3.1 Universal likelihood and magnitude scales

This section should be read in conjunction with section E.1.6.4 Prospect and risk analysis and synthesis.

Likelihood, gain or loss magnitude rating scales use simple data measures such as high, medium and low (H, M and L) or a set of integers e.g. '1 to 6' which has the advantage that it can easily be aligned with H, M and L and with the three traffic light colours to facilitate colour coded communication. Shades of blue can be used to colour code levels of magnitude of potential gain.

Table 5: Likelihood Rating

Prospect	Likelihood Rating	Risk
1	Every 1000 years	1
2	Every 100 years	2
3	Every 10 years	3
4	Yearly	4
5	Monthly	5
6	Daily or Continual or Continuous	6

3.1.1 Estimation of event likelihood rating

Estimates of likelihood are generally more consistent using a numerical scale rather than a qualitative one i.e. avoiding qualitative statements such as high, medium, low, unlikely etc. and using statements such as once per year.

Table 5: Likelihood Rating**Error! Reference source not found.**, defines a scale from 1 to 6 that may be used to express estimates of the likelihood of events, which may be prospect or risk or a mixture of both.

In some cases likelihood data may be available that may be used for the estimate and in other circumstances best judgment may be the only option. Prospect and risk assessment is not a perfect process but its use can be justified when it enables an organisation to manage or perform better by using it rather than not using it.

3.1.2 Estimation of magnitude rating

Estimates of potential gain or loss magnitude can similarly be expressed according to prospect or risk rating scales but need to be applied to all of the different facets of an organisation's performance that may form part of the needs and expectations of the stakeholders of the organisation – refer to Appendix 6: General Aspects of an Organisation. These are shown in Table 6: Gain magnitude rating scales, and Table 7: Loss magnitude rating scales. They typically include scales covering:

- Organisation loss of functionality
- Health and safety
- Environmental impact
- Commercial
- Security (not applicable to prospect)
- Reputation and public relations

The organisation may define its own performance facets, corresponding risk classifications and scale definitions as it deems appropriate. The commercial magnitude scale is an example for a very small organisation and should be adjusted to align with the actual organisation's circumstances and currency. The scale should increase in orders of magnitude with a level of -6 equating to a loss that the organisation would not reasonably recover from.

Although not essential, gain and loss magnitude ratings can follow the convention of positive for prospects and negative for risks. This facilitates their differentiation in lists containing both prospects and risks including conditional formatting when using computer based spreadsheets.

When using the scales in practice it may be necessary to consult more than one scale to determine a gain and/or loss rating for an identified prospect or risk depending on the facets of performance being addressed. The multiple prospect and risk ratings should be appropriately aggregated. For risk, the largest risk rating should be used as the aggregated risk rating value.

Table 6: Gain magnitude rating scales

Gain Magnitude					
Rating	Organisation Functionality Improvement	Health Improvement	Environment Improvement	Commercial Gain e.g. for a small organisation	Reputation and Public Relations Improvement
1	Negligible improvement	Negligible improvement	Minor improvement to local environment.	< £10	Small increase in positive web site hits or other enquiries.
2	Local minor unsustained improvement.	Local minor unsustained improvement.	Significant improvement to local environment.	£10 - £1000	Measurable increase in positive web site hits or other enquiries regarding confidence in the organisation's operations.

Gain Magnitude					
Rating	Organisation Functionality Improvement	Health Improvement	Environment Improvement	Commercial Gain e.g. for a small organisation	Reputation and Public Relations Improvement
3	Local minor sustained OR Local significant unsustained improvement.	Local minor sustained OR Local significant unsustained improvement.	Major improvement to local environment OR Significant improvement to the national environment.	£100 - £1,000	Significant increase in positive web site hits or other enquiries regarding confidence in the organisation's operations.
4	Local significant sustained OR Widespread minor unsustained improvement.	Local significant sustained OR Widespread minor unsustained improvement.	Major improvement to local environment OR Significant improvement to the national environment OR Minor improvement to the world's environment.	£1,000 - £10,000	Non front-page newspapers or non-lead TV/Radio positive news story for one day only.
5	Widespread minor sustained OR Widespread significant unsustained improvement.	Widespread minor unsustained improvement.	Major improvement to the national environment OR Significant improvement to the world's environment.	£10,000 - £1000,000	Non front-page newspapers or non-lead TV/Radio positive news story for more than one day. OR Front page newspapers or lead TV/Radio positive news story for one day only.
6	Widespread significant sustained improvement	Widespread minor sustained OR Widespread significant unsustained improvement.	Major improvement to the world's environment.	> £100,000	Front page newspapers or lead TV/Radio positive news story for more than one day.

Table 7: Loss magnitude rating scales

Loss Magnitude						
Rating	Organisation Loss of Functionality	Health and Safety	Environment	Commercial e.g. for a small organisation	Security	Reputation and Public Relations
-1	Minor disruption to operations or services.	Insignificant injury.	Negligible impact to environment.	< £10	Negligible impact on security and no loss.	Negligible increase in negative web site hits or other enquiries.

Loss Magnitude						
Rating	**Organisation Loss of Functionality**	**Health and Safety**	**Environment**	**Commercial e.g. for a small organisation**	**Security**	**Reputation and Public Relations**
-2	Loss of service up to 24 hours.	Minor injury.	Low impact to local environment.	£10 - £1000	Minor security breach with no significant loss.	Measurable increase in negative web site hits or other enquiries regarding confidence in the organisation's operations.
-3	Loss of a service from 24 hours to a week.	Serious injury.	Significant local impact to the environment OR Low long-term impact to the national environment.	£100 - £1,000	Security breach leading to minor loss.	Significant increase in negative web site hits or other enquiries regarding confidence in the organisation's operations.
-4	Loss of a service for one week.	Serious injury with long-term incapacitation.	High local impact to the environment OR Significant long term impact to the national environment OR Minor long-term impact to the world's environment.	£1,000 - £10,000	Security breach leading to significant loss.	Non front-page newspapers or non-lead TV/Radio negative news story for one day only.
-5	Loss of all operations between one week and a month.	Fatalities.	Serious long term impact to the national environment OR Significant long-term impact to the world's environment.	£10,000 - £1000,000	Serious breakdown of security causing major loss of confidence to a key customers or other stakeholder(s).	Non front page newspapers or non-lead TV/Radio negative news story for more than one day OR Front page newspapers or lead TV/Radio news negative story for one day only.
-6	Loss of all operations for more than a month.	Multiple fatalities.	Serious long term impact to the world's environment OR Significant irreversible change to the world's environment.	> £100,000	Major breach of security leading to total lack of confidence in current and previous operations.	Front page newspapers or lead TV/Radio negative news story for more than one day.

3.2 Prospect and risk rating matrices and scales

This section should be read in conjunction with section E.1.6.4 Prospect and risk analysis and synthesis.

Prospect and risk rating matrices consist of rows and columns, shown in Figure 32: Prospect Rating Matrix and Figure 33: Risk Rating Matrix. They comprise an array of output values computed from inputting the likelihood estimate and the magnitude of gain or loss estimates obtained from using the likelihood and consequence scales described in the preceding section 3.1 Universal likelihood and severity scales.

Potential Gain Magnitude		Likelihood: Low 1	Low 2	Medium 3	Medium 4	High 5	High 6
High	6	(6) 2.5	(12) 3.5	(18) 4.2	(24) 4.9	(30) 5.5	(36) 6
	5	(5) 2.2	(10) 3.2	(15) 3.9	(20) 4.5	(25) 5	(30) 5.5
Medium	4	(4) 2	(8) 2.8	(12) 3.5	(16) 4	(20) 4.5	(24) 4.9
	3	(3) 1.7	(6) 2.5	(9) 3	(12) 3.5	(15) 3.9	(18) 4.2
Low	2	(2) 1.4	(4) 2	(6) 2.5	(8) 2.8	(10) 3.2	(12) 3.5
	1	(1) 1	(2) 1.4	(3) 1.7	(4) 2	(5) 2.2	(6) 2.5

Figure 32: Prospect Rating Matrix

The combinations of likelihood and magnitude obtained by simple multiplication compute to numbers between 1 and 36 shown in brackets in the top part of the cells. Below these values, the combinations have been normalized to numbers between 1 and 6 by taking the square root e.g. 36 becomes 6. These numbers can be further rationalised and expressed as integers. Simple likelihood and severity estimation scales ranging from 1 to 6 can therefore be used to provide a simple estimate of prospect or risk ranging from 1 to 6 or -1 to -6 respectively using the rating scales defined by the prospect and risk matrices. All these scales are calibrated from 1 to 6 or -1 to -6 and can be conceptually interpreted as high, medium and low facilitating a simple communication of the estimated prospect or risk using appropriate colour coded communication.

Potential Loss Magnitude		Likelihood: Low 1	Low 2	Medium 3	Medium 4	High 5	High 6
Low	-1	(-1) -1	(-2) -1.4	(-3) -1.7	(-4) -2	(-5) -2.2	(-6) -2.5
	-2	(-2) -1.4	(-4) -2	(-6) -2.5	(-8) -2.8	(-10) -3.2	(-12) -3.5
Medium	-3	(-3) 1.7	(-6) 2.5	(-9) 3	(-12) 3.5	(-15) 3.9	(-18) 4.2
	-4	(-4) -2	(-8) -2.8	(-12) -3.5	(-16) -4	(-20) -4.5	(-24) -4.9
High	-5	(5) -2.2	(10) -3.2	(15) -3.9	(20) -4.5	(25) -5	(30) -5.5
	-6	(-6) -2.5	(-12) -3.5	(-18) -4.2	(-24) -4.9	(-30) -5.5	(-36) -6

Figure 33: Risk Rating Matrix

The cells within the prospect and risk matrices have been divided into three value zones and coloured:

- Light blue, blue and dark blue corresponding to low, medium and high prospect respectively,
- Green, yellow and blue corresponding low, medium and high risk respectively.

5 to 6	High prospect
3 to 4	Tolerable prospect
1 to 2	Unacceptable prospect
-1 to -2	Low risk
-3 to -4	Tolerable risk
-5 to -6	Unacceptable risk

Table 8: Prospect and risk rating tolerability

Combinations of likelihood and severity compute to three levels of prospect and three levels of risk uniquely coloured to differentiate them. They broadly correspond to the tolerability levels of prospect and risk shown in Table 8: Prospect and risk rating tolerability. Organisations normally operate with ideally high or tolerable prospect and low or tolerable risk avoiding low unacceptable prospect and high unacceptable risk. However,

prospect and risk may be modified by applying controls covered in Appendix 3.3 Prospect and risk control.

Each corner of the matrices represents a different category of prospect or risk with respect to its likelihood and magnitude components – refer to Figure 34: Prospect and Risk Matrix Characteristics. The figure combines prospect and risk matrices shown separately in Figure 32: Prospect Rating Matrix and Figure 33: Risk Rating Matrix. The arrows emanating from the origin represent prospect and risk vectors, which normally vary over time e.g. prospect and risk vary during the life of an organisation or project.

The characteristics of the four principal regions of the prospect and risk matrices are described in the following four subsections:

3.2.1 Low-frequency and low magnitude

Low-frequency and low consequence represents a potential event of small consequence and rarely occurring and consequently warrants little management attention and consequently no specific management controls.

3.2.2 Low-frequency and high magnitude

Low-frequency and high magnitude gain or loss represents a potential event where the consequences are very high, such as the winning of a very large contract or an earthquake or other major disaster, but happens very rarely. It is easy to for organisations to get complacent about low-frequency events because of their apparent rarity. Because these high consequence events are infrequent and cannot be predicted they require more sophisticated management control.

3.2.3 High-frequency and low magnitude

High-frequency and low consequence represents a potential event that is frequent but low in consequence, for example many small sales or someone sustaining a minor bruise to part of their body. A large number of these types of events may add to a considerable gain or loss.

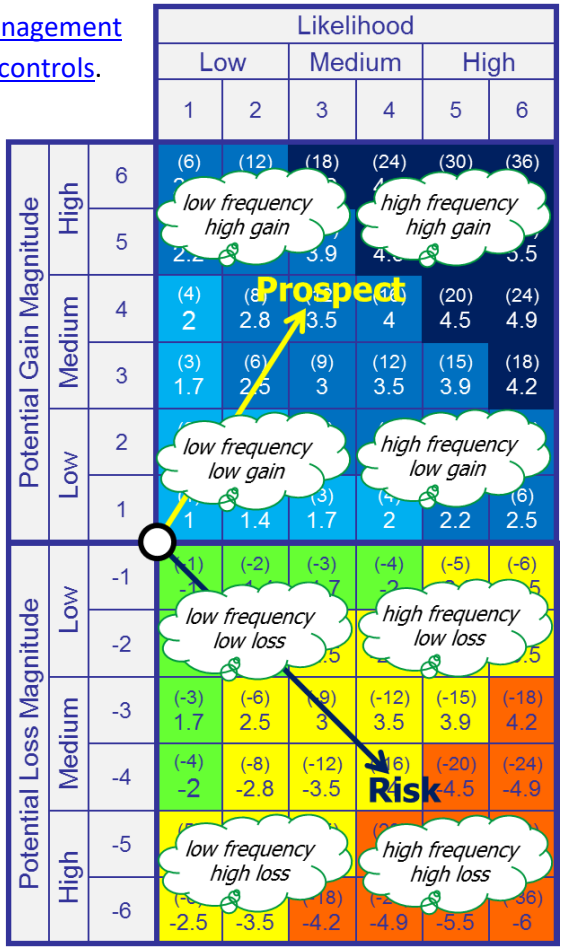

Figure 34: Prospect and Risk Matrix Characteristics

3.2.4 High-frequency and high magnitude

High-frequency and high consequence represents a potential event that is both frequent and has high consequence. An example of this would be road accidents that are reasonably frequent and people are often killed. However, major disasters are not frequent and would not come under this category.

3.2.5 Matrix symmetry and asymmetry

Across the matrices, cells with the same value can be observed. The example matrices are symmetrical across a diagonal line running from (1)1 to (36)6. These type of prospect and risk matrices are most commonly used indicating that the organisation has no preference between a high frequency low consequence prospect and a low frequency high consequence prospect (and similarly for risk) e.g. no preference between ten events a year involving a single fatality and one event a year with ten fatalities. However, although the likely annual loss is ten fatalities in both instances the impact on the organisation can be different e.g., a multiple death event attracts more media and societal attention. For this reason, non-symmetrical skewed matrices are sometimes used by organisations to reflect that it is more averse to low frequency larger impact events than it is to high frequency lower impact risks.

3.3 Prospect and risk control

This section should be read in conjunction with section E.1.6.5 Prospect and risk improvement.

Any situation may be potentially improved by the application of prospect and risk controls. An ideal opportunity would have a prospect rating of 6 with an associated risk rating of -1 but this is not normally the situation. An organisation would naturally avoid a low unaccaptable prospect or a high unacceptable risk situation unless it is able to improve it through the application of prospect and risk controls. A tolerable prospect or tolerable risk may be able to be improved to high prospect and low risk respectively respectively by applying controls where practicable. However, the cost of applying the controls should not be disproportionately high.

The prospect and risk assessment methodology described in this matrix should be applied to estimate the levels of prospect and risk before and after controls are applied. The prospect and risk before application is often referred to as the inherrent or uncontrolled prospect and risk and after is referred to as the residual prospect and risk. The application of prospect and risk controls is shown conceptually in Figure 35: Application of Prospect and Risk Controls Example.

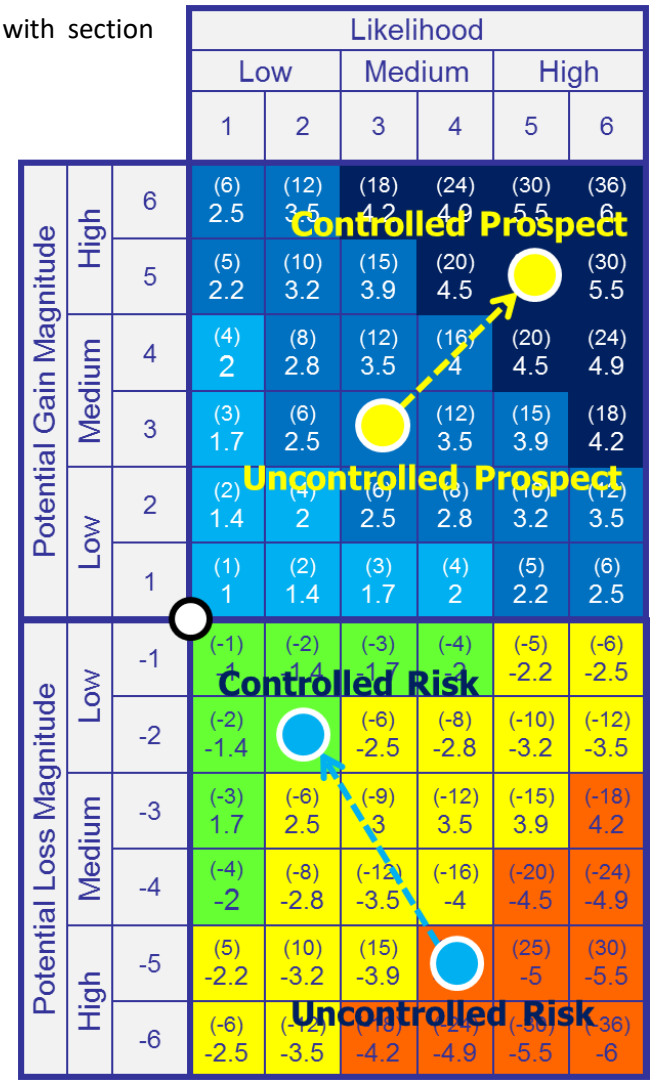

Figure 35: Application of Prospect and Risk Controls Example

If the applied prospect and risk controls are ill-conceived or should fail the respective controlled prospect and/or risk, as applicable, will revert to the inherrant uncontrolled prospect and/or risk. Planned monitoring should therefore be applied appropriately depending on the potential impact of

the controls failing and the likelyhood of the controls failing – refer to section 0 Planned Monitoring and Appendix 3.4 Prospect and risk register structure below.

3.4 Prospect and risk register structure

Figure 36 below provides an example of how a prospect and risk register may be structured for an organisation or project to record uncontrolled and controlled prospect and risk ratings derived from prospect and risk assessments. It acts as a transparent structure to help guide and iterate assessments, facilitate independent peer review, demonstrate compliance with the organisation's prospect and risk criteria, indicate where planned monitoring should be particularly focused, and act as a basis for assessing the impacts of proposed changes within the organisation or project – refer to section E.1.6 Prospect and risk assessment and Figure 10: Prospect and Risk Assessment Cycle.

The register structure may be adapted to suit the particular needs of the organisation and may be recorded on a spreadsheet or database. Conditional formatting may be employed to promote colour coded communication. Absolute prospect and risk estimates may be used instead of prospect and risk ratings.

Typical data entered is as follows:

1. **Reference Number**. This should ideally be an organisation/project universal hierarchical reference to aid identification and traceability.

2. **Structure and/or process**. This defines the focus of the prospect and/or risk assessment – refer to sections E.1.1 Foundation planning and E.1.6.1 Prospect and risk assessment planning.

   An additional column may be added to record the structure and/or process classification.

3. **Aspects and Impacts (opportunities, threats, hazards)**. This defines the particular aspects and impacts associated with the structure and/or process that may be viewed positively or negatively by stakeholders e.g. health and safety of people, the environment, commerce and assets etc. These aspects and impacts can be recorded in separate dedicated columns. Refer to section E.1.6.1 Prospect and risk assessment planning and Appendix 6: General Aspects of an Organisation. The recording of aspects and impacts supports the requirements of section E.1.6.3 Prospect and risk identification.

4. **Uncontrolled Potential Gain and/or Loss Ratings**. 4a to 4d record the assessed uncontrolled potential gain and loss ratings – refer to Appendix 3.1 Universal likelihood and magnitude scales, Table 6: Gain magnitude rating scales and Table 7: Loss magnitude rating scales. 4e and 4f record the highest gain rating and the lowest risk rating respectively. Gain ratings should be recorded as positive and loss ratings as negative. These ratings support the requirements of section E.1.6.4 Prospect and risk analysis and synthesis.

5. **Uncontrolled Likelihood**. This is the assessed uncontrolled likelihood rating for the potential event – refer to Appendix 3.1 Universal likelihood and magnitude scales **Error! Reference source not found.**. These ratings support the requirements of section E.1.6.4 Prospect and risk analysis and synthesis.

6. **Uncontrolled Prospect**. This is the combination of the 4e and 5 ratings and represents the maximum uncontrolled prospect – refer to Figure 32: Prospect Rating Matrix. These ratings support the requirements of section E.1.6.4 Prospect and risk analysis and synthesis.

7. **Uncontrolled Risk**. This is the combination of the 4f and 5 ratings and represents the highest uncontrolled risk – refer to Figure 33: Risk Rating Matrix. These ratings support the requirements of section E.1.6.4 Prospect and risk analysis and synthesis.

			Uncontrolled Prospect and Risk Ratings									Controlled Prospect and Risk Ratings											
1. Reference No.	2. Structure/Process	3. Aspect and Impact	4a. Personnel H&S	4b. General Public	4c. Environmental	4d, Commercial	4e.Max Gain	4f.Max Loss	5. Likelihood	6. Prospect	7. Risk	8. Prospect/Risk Control(s)	9a. Personnel H&S	9b. General Public	9c. Environmental	9d. Commercial	9e.Max Gain	9f.Max Loss	10. Likelihood	11. Prospect	12. Risk	13. Legislation	14. Controls Criticality	15. Action/Responsibility	16.Notes

Figure 36: Example Prospect and Risk Register Structure

8. **Prospect and/or Risk Control(s)**. These are the physical and/or administrative controls applied by management to increase prospect and/or reduce risk and may include contingency structures and contingency processes – refer to Appendix 3.3 Prospect and risk control and section E.1.6.5 Prospect and risk improvement.

9. **Controlled Potential Gain and/or Loss Ratings**. 9a to 9d record the assessed controlled potential gain and loss ratings corresponding to step 4 above. These ratings support the requirements of section E.1.6.6 Prospect and risk improvements analysis and synthesis.

10. **Controlled Likelihood**. This is the assessed controlled likelihood rating for the potential event corresponding to step 5 above. These ratings support the requirements of section E.1.6.6 Prospect and risk improvements analysis and synthesis.

11. **Controlled Prospect**. This is the combination of the 9e and 10 ratings and represents the maximum uncontrolled prospect corresponding to step 6 above. These ratings support the requirements of section E.1.6.6 Prospect and risk improvements analysis and synthesis.

12. **Controlled Risk**. This is the combination of the 9f and 10 ratings and represents the highest controlled risk corresponding to step 7 above. These ratings support the requirements of section E.1.6.6 Prospect and risk improvements analysis and synthesis.

13. **Legislation**. These are references to applicable legislation relating to the organisation structure or process or aspect being assessed – refer to section E.1.5 Legislation and standards.

14. **Controls Criticality**. This is an estimate rating (e.g. high, medium, low) of the criticality of the prospect and/or risk controls defined to enhance the prospect or reduce the risk respectively. If these administrative or engineered prospect and/or risk controls fail, the controlled prospect or controlled risk will tend to become the uncontrolled prospect or uncontrolled risk respectively. The rating may be used to inform the planned monitoring arrangements by varying the frequency and degree of inspections and audits supporting a prospect and risk informed dynamic planned monitoring program – refer to section E.11.1 Monitoring planning.

15. **Actions and responsibility**. This section permits the recording of actions related to the implementation and maintenance of the prospect and risk controls and the assignment of responsibility. It may be in the form of a cross reference to another document. These records may be used to support the requirements of sections E.1.6.7 Prospect and risk assessment review and E.1.6.8 Residual prospect, risk and controls acceptance.

16. **Notes**. This section permits the recording of additional data that may assist in understanding the prospect and risk assessment and its future review that may not necessarily be performed by the originator. These records may be used to support the requirements of section E.1.6.7 Prospect and risk assessment review.

Appendix 4: Management Tools and Techniques

For application, refer to section E.1.8 Management tools and techniques.

The following is a non-exhaustive list of management tools typically used to assist organisations to improve their management structures and processes and help manage under uncertainty.

3d Graphs

Graph of a function of two variables f(x, y). Provided that x, y, and f(x, y) are real numbers, the graph can be represented as a planar or curved surface in a three-dimensional Cartesian coordinate system.

Absolute Probability Judgment (APJ)

Methodology for assessing human reliability as part of risk assessment and risk control. It is also known as 'Direct Numerical Estimation'. It relies on the utilization of experts to estimate human error probabilities based on their knowledge and experience.

Activity Network (critical path network)

Diagram displaying inter-dependencies between tasks through the use of boxes and arrows. Used to schedule dependent activities within a plan. Arrows pointing into a task box come from its predecessor tasks, which must be completed before the task can start. Arrows pointing out of the task box go into its successor tasks, which cannot start until at least this task is complete.

Affinity Diagram

Diagram used to structure a large number of discrete pieces of information. Use to bring order where there are many individual pieces of information held by different people but there is no clear picture of the overall state.

Aspect and Impact Questionnaires

Set of questions to elicit aspect and impact identification data within an organisation. See also 'Check Sheets'.

Bar Chart

Chart used to show the differences between related groups of measurements when a set of measurements can be split into discrete and comparable groups, to show the relative change between these groups and when there are multiple sets of measurement groups, to show the relationship and change within and between groups.

Bayesian Statistics

Statistical technique in which the evidence about the true state of the world is expressed in terms of degrees of belief or, more specifically, Bayesian probabilities. Used in prospect and risk assessment.

Boston Grid

Chart to present organisation units or product lines. Used for prospect and risk identification and assessment. This helps the organisation allocate resources and is used as an analytical tool in brand marketing, product management, strategic management, and portfolio analysis.

Bowtie

Diagram that visualizes the prospect or risk under consideration in just one, easy to understand picture. The diagram is shaped like a bow-tie, creating a clear differentiation between proactive and reactive prospect and risk management. Used to analyze prospect and risk and to communicate hazard the findings to a broad audience. See also Figure 24: Reactive Investigation.

Brainstorming

Technique that encourages creative thinking and the generation of ideas. Used to move outside of rational or conventional thinking.

Cash Flow Analysis

Type of financial analysis that compares the timing and amount of cash inflows with the timing and amount of cash outflows. Used for prospect and risk assessment, as a firm's cash flow position can greatly affect its ability to remain in operation. These effects may not be apparent from a 'Cost Benefit Analysis'.

Cause and Effect Analysis

Technique for identifying the possible causes affecting a problem or project. A cause-and-effect diagram is a simple yet powerful method of visually recording possible causes and their effects. Used for prospect and risk identification and prospect and/or risk assessment. Also for defining a problem, identifying possible data requirements, identifying possible causes, developing objectives for solutions, and narrowing down causes. Also known as a 'Fishbone Diagram'.

Check Sheets

Form used to gather data over time. A systematic and simple way of recording data. Use to find out what the facts are, to prove or disprove what is actually happening, to detect patterns or trends, to provide a logical start point or bases against which progress can be measured. It may be deployed at any point in the problem identification process.

Concentration Diagrams

Visual displays of how often and where defects or problems occur, on a product, or a form, or in a process. May be deployed during data gathering, when analyzing data, or as solutions are implemented and tested. Useful for identifying areas or recurring faults and to determine the relative frequency of each position of a fault.

Control Charts

Plot of process data values over time, with high and low tolerance levels. Used to understand process variation.

Cost Benefit Analysis

Systematic process for calculating and comparing benefits and costs of a project, decision or government policy. Used for risk assessment and prospect and risk control. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

Critical Path Analysis

Used for project and task management. It is a methodology for determining which series and parallel activities determine the time of a project or task to be completed. See also 'Activity Network' and 'PERT'.

Data Handling and Display

Used for displaying data graphically or pictorially to aid communication, add impact, and highlight data relationships. It may be applied at any stage in the problem-solving process or when monitoring progress of the implemented solution.

Decision Tree

Graphical representation of multiple options that in turn may be successful or fail. Useful when required to select from a number of possible courses of action.

Delphi Technique

Structured communication technique, originally developed as a systematic, interactive forecasting method that relies on a panel of experts. Useful for prospect and risk identification and prospect and/or risk assessment.

Design of Experiments

Methodology to improve the effectiveness and efficiency of experimentation. It promotes an understanding of the effects of different factors in a given situation.

Event Tree Analysis (ETA)

Inductive analytical diagram in which an event is analyzed using Boolean logic to examine a chronological series of subsequent events or consequences. An event tree displays sequence progression, sequence end states and sequence-specific dependencies across time.

Expected Value Method

Involves multiplying each of the possible outcomes by the likelihood that each outcome will occur, and summing all of those values. Useful for risk assessment. By calculating expected values, stakeholders can choose the scenario that is most likely to give a desired outcome.

Failure Mode and Effects Analysis (FMEA)

Methodology to identify and prioritize how items fail and the effects of that failure. Use when designing products or processes and for investigating existing structures. See also mode.

Failure Prevention Analysis

Method to anticipate problems before they happen. Helps move from reacting to failure to being proactive in preventing failure. Used on any new activity, whenever a significant change is planned, or where consequences of failure are potentially major.

Fault Tree Analysis

Shows combinations of failures that can cause overall system failure. It employs a method of breaking down chains of failures, with a key addition for identifying combinations of faults that cause other faults.

Fishbone Diagram

See Cause and Effect Analysis

Flow Chart

Used to understand workflows. Major steps of an operation are connected with lines and arrows.

Focus Groups

Form of qualitative research in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards a good, service, concept, advertisement, idea, or packaging etc. Questions are asked in an interactive group setting where participants are free to talk with other group members. Used for prospect and risk identification and determining stakeholder needs and expectations.

Force Field Analysis

Technique for identifying forces that help or obstruct a desired change. Weighs up the points for and against a potential action. Used whenever managing change and planning to overcome barriers to change. It helps by defining what is working for and against any proposal, identifying forces that cannot be changed.

Flying Bricks Charts

See Waterfall Charts.

Gantt Chart

Simple horizontal bar chart used to show the time each task is intended to take. Bars represent the actual calendar time that is planned for each task. The scale used for the time will depend on the overall size of the project and the estimation increment used.

Gap Analysis

Comparison of actual performance with potential performance. Used for prospect and risk identification and prospect and risk assessment.

Hazard and Operability Study (HAZOP)

Structured and systematic examination of a planned or existing process or operation to identify and evaluate problems that may represent prospects or risks to personnel or equipment, or prevent efficient operation.

Heat Maps

Used for prospect and risk assessment and prospect and risk control. They are graphical representations of data where the individual values contained in a matrix are represented as colours (usually red, amber, and green). It is a form of colour coded communication (CCC).

Hierarchical Task Analysis (HTA)

Task description method and a variant of task analysis, used for complex processes. Task description is a necessary precursor for other analysis techniques, including 'Critical Path Analysis (CPA)'. HTA is used to produce an exhaustive description of tasks in a hierarchical structure of goals, sub-goals, operations and plans, where tasks are broken down into progressively smaller units.

Histograms

Bar graph display of process performance using two variables. This allows the proportion of occurrence by category to be displayed visually.

How-How Diagrams

Simple technique for considering solution alternatives rather than jumping to the obvious, but not necessarily best solution. It can help to isolate specific steps to implementing a solution and hence formulate an action plan. Useful for selecting, testing and costing solutions and their action plans.

Human Cognitive Reliability Method (HCR)

Methodology for assessing human reliability, as part of risk assessment and prospect and risk control. The technique represents the operating crew actions in terms of an extended operation action tree and quantifies the probability of their nonresponse using one of a set of three time related correlations.

Human Error Assessment and Reduction Technique (HEART)

Methodology for assessing human reliability, as part of prospect and risk assessment and prospect and risk control. It considers human reliability to be dependent upon many factors.

Infrastructure Tour

A systematic physical and/or virtual tour (walk down or study of drawings and photographs etc.) of infrastructure, including plant systems and equipment etc., to identify prospects and risks (threats/hazards). This may be supplemented by more structured approaches e.g. 'Hazard and Operability Study (HAZOP)' or 'Failure Mode and Effects Analysis (FMEA)' etc., as appropriate.

Icam-Definition

Functional modeling technique for computer-aided manufacturing. Used to make a detailed and clear description of a process or structure.

Influence Diagram Approach (IDA)

Methodology for assessing human reliability, as part of risk assessment and prospect and risk control. It is based on the principle that human reliability is determined by the combined influences of multiple factors.

Interviews

Conversations in which one person (the interviewer) elicits information from another person (the subject or interviewee). Used for prospect and risk identification, determining stakeholder needs and expectations, reactive investigation, assessing competence etc.

Latin Hypercube

Statistical method for generating a sample of plausible collections of parameter values from a multidimensional distribution. The sampling method is often used to construct computer-based experiments. Used for prospect and risk assessment.

Line Graph

Set of points that are plotted on a graph from pairs of numbers in a list, with lines drawn between each pair. Typically, one number in the pair is the measured item and is shown on the vertical axis, while the second number is shown on the horizontal axis. Useful for showing patterns of change in a sequence of measurements.

Linear Programming

Method to achieve the best outcome (such as maximum profit or lowest cost) in a mathematical model whose requirements are represented by linear relationships. Linear programming is a special case of 'Mathematical Programming' (mathematical optimization), used to optimally deploy resources.

Mario Charts

See Waterfall Charts.

Matrix Data Analysis Chart

Chart that helps to identify clusters of related items within a larger group. It classifies items by identifying two major characteristics common to all items and then plotting each item as a point on a standard X – Y chart.

Matrix Diagram

Technique to identify the relationship between layers of lists. It compares lists by turning the second list on its side to form a matrix.

Monti Carlo Analysis

Broad class of computational algorithms for prospect and risk analysis and prospect and risk control. It uses repeated random sampling to obtain numerical results. It is useful for modeling the dynamic behavior of systems.

Nominal Group Technique

Group problem-solving process involving problem identification, solution generation, and decision-making.

Paired Comparisons

Technique used after 'Brainstorming' ideas to reduce them to a usable number and placed them in a preferred order. Enables group consensus to be achieved in a structured way, avoiding long debate and voting. Useful for human reliability assessment as part of prospect and risk assessment and prospect and risk control.

Pareto Analysis

Simple method that helps separate the major causes of the problem from the minor ones, displayed in the form of a vertical bar chart. Also known as the 80/20 rule; 80% of the problems are due to 20% of the causes. Used to display the relative importance of causes and choose a solution start point. Also, to compare data over different time periods.

Pareto Charts

Bar chart showing the quantity of occurrence by category, sorted high to low. Used to show actual and potential variation.

Performance Indicators

Type of performance measurements. An organisation may use performance indicators to evaluate its success, or the level of performance of a structure and/or process. Encourages performance monitoring at all levels within an organisation. See also key performance indicator. See also 'Prospect Indicators' and 'Risk Indicators'.

Political, Economic, Sociological, Technological, Legislation and Environment Analysis (PESTLE)

Analytical tool for prospect and risk identification and prospect and/or risk assessment. It contributes to strategic organisation planned and is a strategic framework for understanding external influences on an organisation.

Portfolio Analysis

Process used to assess the suitability of a portfolio of securities or businesses relative to its expected investment return and its correlation to the prospect and risk tolerance of an investor seeking the optimal trade-off between prospect and risk.

Prioritization Matrix

Provides a way of sorting a diverse set of items into an order of importance. It also enables their relative importance to be identified by deriving a numerical value of the importance of each item.

Probability and Consequence Grid/Diagrams (PIDS)

Way of graphically displaying prospect and risk estimates with respect to likelihood and consequence. Used for prospect and risk identification and prospect and/or risk assessment

Probability Trees

Diagram used in probability calculations for prospect and risk assessment.

Process Capability

Methodology to determine the ability of the process to meet specification limits. If the measured output of a process exceeds the specified limits, the process is deemed to be out of control.

Process Decision Program Chart

Provides a simple method to identify potential problems and countermeasures. It identifies prospects and risks and control measures.

Process Flow Charts

Diagrammatic picture of the various steps, form the sequence of the sub processes of a process. Often shortened to flowchart. This tool is frequently used and is a necessary part of understanding how any job or process operates.

Profile Graphs

Stacked area graphs of prospect or risk magnitude. The prospect or risk magnitude scores are plotted one on top of another to give a cumulative magnitude profile of the project. When prospects or risks

and their history of magnitude are displayed like this it is much easier to interpret the overall prospect and risk status of the project.

Program Evaluation and Review Technique (PERT)
See 'Critical Path Analysis'.

Project Profile Model (PPM)
Prospect and risk identification method, using a standard set of high-level criteria for assessing the degree of complexity of a proposed asset investment.

Prospect and/or Risk Mapping and Profiling
Graph that illustrates in grid format the frequency and magnitude of possible and probable gains and/or losses that may be incurred by the organisation. Used for prospect and risk identification and prospect and/or risk assessment.

Prospect and/or Risk Modelling and Simulation
Variety of techniques to present a portfolio and make forecasts of the likely gain and losses that would be incurred for a variety of prospects and risks. See also **'**Monte Carlo' and 'Latin Hypercube'**.**

Prospect and/or Risk Register/Database
Central repository for all prospects and/or risks identified by the project or organisation. Each identified prospect or risk includes information such as prospect or risk probability, impact, counter-measures, owner and so on. It is sometimes called a 'Prospect and/or Risk Log'.

Prospect and/or Risk Workshop
Group activity lead by a facilitator to identify and assess prospects and/or risks. Also called 'What If Workshop'.

Prospect Indicators
Measure used in management to indicate how large the prospect is associated with an activity. It differs from a 'Performance Indicator' in that the latter is meant as a measure of how well something is being done while the former is an indicator of the possibility of future adverse impact. See also 'Risk Indicators'.

Qualitative Prospect and/or Risk Assessment
Determination of qualitative value of prospect or risk related to a concrete situation and a recognized opportunity or threat (also called hazard). See 'Prospect Assessment' and 'Risk Assessment'**.**

Quantified Prospect and/or Risk assessment
Quantitative prospect and/or risk assessment requires calculations of two components prospect (P) or risk, the magnitude of the potential gain (G) or loss (L), and the probability (P) that the loss will occur. See 'Prospect Assessment' and 'Risk Assessment'**.**

Radar Chart
Graphical method of displaying multivariate data in the form of a two-dimensional chart of three or more quantitative variables represented on axes starting from the same point. It is also known as web

chart, spider chart, star chart, star plot, cobweb chart, irregular polygon, polar chart, or kiviat diagram. Used for prospect and risk assessment and prospect and risk control.

RAG Status Reports

Reports with element criticality rated as red, amber, or green, the colors used for traffic lights. It is a form of colour coded communication (CCC). Used for prospect and risk assessment and response. Also called 'Heat Maps'.

Ranking and Rating

Structured process of placing a number of options in order of preference, by using the scoring system that is called rating. Used for deciding on which problems to tackle, which solutions to implement, and which alternatives to use.

Relations Diagram

Used to clarify and understand multiple complex relationships between different elements of a problem that cannot be organized into familiar structures such as hierarchies or matrices.

Resource Analysis

Project management technique to optimize the application of resources to a critical path network. See 'Critical Path Analysis'.

Risk Breakdown Structure

Hierarchically organized depiction of the identified project risks arranged by category. Used for risk identification and risk assessment. Also called risk taxonomy.

Risk Checklists/Prompt Lists

Job aid (checklist) used to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task.

Risk Indicators

Measure used in management to indicate how risky an activity is. It differs from a 'Performance Indicator' in that the latter is meant as a measure of how well something is being done while the former is an indicator of the possibility of future adverse impact. See also performance indicator.

Root Cause Analysis

Method of problem solving that tries to identify the root causes of faults or problems. See also section E.10.1.3 Investigation and analysis of root causes.

NOTE 1: Root causes should ideally be classified according to the management topic taxonomy adopted by this MSS to facilitate change improvements to the relevant part of the organisation's or project's management system etc. – refer to section A.1.3 Universal PDCA twelve element structure.

Scatter Diagram

A plot showing occurrences between two variables, to understand relationships. Used to understand process variation. Also used to show the type and degree of any causal relationship between two factors.

Scenario Analysis/Scenario Planning/Horizon Scanning

Process of analysing possible future events by considering alternative possible outcomes (sometimes called "alternative worlds"). Use for prospect and risk identification, prospect and/or risk assessment and prospect and risk control.

Sensitivity Analysis

Study of how the uncertainty in the output of a mathematical model or system (numerical or otherwise) can be apportioned to different sources of uncertainty in its inputs. Used for prospect and risk assessment. A related practice is 'Uncertainty Analysis'.

Solution Effect Analysis

Diagram that is the reverse of a cause and effect diagram. Used to check that a solution to a problem solves that problem and does not cause other problems. Often identifies further action necessary to implement the chosen solution.

Stakeholder Analysis

Technique used to identify stakeholders, their needs, their expectationss, their aspirations and their ability to influence or exercise power. Used during foundation planning of organisations, projects, structures and processes.

Stakeholder Engagement Matrices

Graphical prospect and risk identification method used to record and communicate stakeholder needs and expectations.

Strengths Weaknesses, Opportunities and Threats Analysis (SWOT)

Structured planning method used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture.

Stress Testing

Form of deliberately intense or thorough testing used to determine the stability of a given system or entity. Used for prospect and risk identification and prospect and/or risk assessment. It involves testing beyond normal process capacity, often to a breaking point, to observe the results.

String Diagram

Tool for analyzing and designing workspaces such that movement can be minimized. It investigates the physical movements in a process.

Success Likelihood Index Method (SLIM)

Methodology for assessing human reliability, as part of risk assessment and prospect and risk control. Its basic premise is that human error probabilities depend on the combined effects of performance shaping factors such as the time available to perform a task, quality of procedures, training, etc.

Surveys

General term for a number of methods of collecting data from people and an organisation's assets.

Tables

Way of recording fragmented and disorganized data. Used to organize and relate multiple pieces of information.

Technique for Human Error Rate Prediction (THERP)

Method for assessing human reliability as part of risk assessment and prospect and risk control. It models human errors.

Tecnica Empirica Stima Error Operator (TESEO)

Method for assessing human reliability as part of prospect and risk assessment and prospect and risk control. Experts compare pairs of tasks for which human error abilities are required. For each pair an expert must decide which has the highest likelihood of error.

The Decision Model (TDM)

Method that separates the rules that govern decisions from process logic. Used for analysis, design and operation of organisation processes.

Tree Diagram

Method of breaking down a problem, one layer at a time, into its component parts. It is a hierarchy as opposed to a network. See also 'Hierarchical Task Analysis'.

Uncertainty Analysis

Prospect and risk assessment tool to investigate the uncertainty of variables used in decision-making events. See also Sensitivity Analysis.

Utility Theory

Problem solving, prospect and risk control, and organisation decision method to determine the usefulness of something.

Value Analysis

Approach to improving the value of an item or process by first understanding its functions and their values, then by identifying its constituent components and their associated costs.

Visualization Techniques

Interactive processes using multiple stakeholders to improve understanding of prospect and risk.

Voting

Voting uses the democratic principle to enable all members of the group to agree on a final selection by giving equal selection power to each person. Helps to prioritize and select the best choice.

Waterfall Charts

Form of data visualization for prospect and risk assessment and prospect and risk control. It determines the cumulative effect of sequentially introduced positive or negative values. It is also known as a 'Flying Bricks Chart' or 'Mario Chart'.

What If Workshop

Refer to Prospect and/or Risk Workshop.

Why – Why Diagrams

Method of identifying root causes of the problem. It is often used for greater depth than identified on the 'Cause and Effect Diagram'. Useful for identifying a problem (or risk), identifying possible causes, identifying quick fixes, analyzing for true causes, and identifying potential solutions.

Appendix 5: Supplier Classification and Grading Examples

This appendix supports section 0 Suppliers.

5.1 Classification of Suppliers Example

The following supplier classifications allow a graded approach to be applied to managing suppliers. Refer to section E.6.1 Classification and vetting.

Table 9: Supplier classification example

Supplier Class		Maximum risk potential to be contributed by supplier – refer to Appendix 3: Prospect and Risk Rating System Example	Classification Criteria as judged or likely to be perceived by stakeholders.
High	6	6	Supplier of a good or service that is critical to commercial, good/service quality, health, safety, environmental protection or security related to the organisation's performance.
	5	5	
Medium	4	4	Supplier with low or no direct impact on the organisation performance.
	3	3	
Low	2	2	Supplier with low or no direct impact on the organisation performance.
	1	1	

5.2 Supplier Performance Grades Example

The following grades have been defined to record the performance of suppliers providing goods and services. Refer to section E.6.4 Performance evaluation.

Table 10: Supplier performance grades example

Grade of Supplier Performance	Performance Criteria
2	Highly satisfactory – preferred choice.
1	Satisfactory – would use again.
0	Insufficient data to make a judgement – use with caution.
-1	Unsatisfactory – prefer not to use again.
-2	Highly unsatisfactory – never use again.

Appendix 6: General Aspects of an Organisation

The following is a non-exhaustive and not necessarily mutually exclusive list of general organisation aspects which may be a source of harm or benefit with respect to stakeholder needs and expectations - refer to section E.1.6.3 Prospect and risk identification. They will not necessarily all be applicable to every organisation and are listed for guidance only under the following subsections:

6.1 Personnel Aspects

- Bullying
- Communication
- Competence
- Cooperation
- Coordination
- Organisation culture
- Death
- Disciplinary processes
- Discrimination
- Employment life cycle from recruitment to discharge
- Equality including gender equality
- Fitness
- Human error
- Injury
- Leadership
- Motivation arrangements
- Organisation structure
- Policy
- Strategic, tactical and operational planning
- Special persons e.g. disabled, young, pregnant and nursing mothers
- Supervision
- Training and mentoring
- Values
- Violence and disorder
- Violation of legislation
- Violation of rules
- Vision
- Welfare
- Work pressures
- Working time

6.2 Commercial Aspects

- Assets
- Asset depreciation
- Bribery
- Capital
- Compensation
- Consents and licences
- Contracts and stakeholder interactions
- Debt collection
- Fraud
- Financial transactions and processes
- Insurance
- Legislation
- Loans
- Marketing including advertising and sales
- Regulation
- Public relations
- Taxation

6.3 Data Aspects

- Archiving
- Accidental loss
- Communication
- Conventions
- Confidentiality
- Corruption
- Cryptography
- Cyber-attack
- Destruction
- Documents
- IT software
- Language
- Media
- Passwords
- Processing
- Records
- Replication
- Sharing
- Theft
- Validation
- Verification

6.4 Matter and Energy Aspects

- Accidental loss
- Asbestos
- Barriers
- Biological materials
- Chemicals and dust
- Collision
- Confined spaces

- Containment
- Decay
- Degradation
- Display screen equipment
- Drugs and alcohol
- Electricity
- Emissions
- Ergonomics
- Equipment
- Explosion
- Exothermic and endothermic reactions
- Facilities
- Fire
- Ionising and non-ionising radiation
- IT hardware
- Lighting
- Logistics
- Machinery
- Manual handling
- Noise
- Radiation
- Slipping, tripping and falling
- Toxicity
- Transformation
- Transportation
- Storage
- Waste
- Water facilities
- Vehicles
- Vibration

6.5 Supplier Aspects

- Classification
- Communication
- Location
- Monitoring
- Performance
- Goods and/or services quality
- Prospect and risk
- Validation
- Values, policy and strategy

6.6 Good and Service Delivery Aspects

- Aesthetics
- Commissioning
- Construction
- Decommissioning
- Delivery
- Demolition
- Design
- Functionality

- Quality
- Risk

6.7 Contingency Aspects

- Crises
- Emergencies
- Disaster recovery
- First aid
- Product recall

6.8 Change Aspects

- Contract
- Experiments
- Management system
- Nonconformity rectification and nonconformity disposition
- Organisation
- Permanent
- Product
- Project
- Service
- Temporary

Appendix 7: Typical Key Performance Indicators

For application, refer to section E.4.3.2 Indicators.

The typical Key Performance Indicators are classified according the twelve management topic principal elements described in section A.1.3 Universal PDCA twelve element structure. As applicable, they may each be further subdivided according to facets of performance of interest to the organisation's stakeholders such as:

- Goods and service quality
- Personnel health, safety and welfare
- Environmental health and safety
- Financial gain and loss
- Reputation

7.1 Assessment and development of controls

a) None.

7.2 Personnel

a) Personnel sickness – percentage hours off sick of normal working hours.
b) Personnel overtime – percentage overtime hours as fraction of normal hours.
c) Personnel turnover – percentage of employees leaving organisation per year.
d) Staff vacancies – Number of vacancies.
e) Personnel employed – number of personnel employed by type (including special classes) and age bands.
f) Personnel appraisals – percentage completed on time and number outstanding.
g) Training – percentage of scheduled training completed on time.
h) Competence – number of personnel with expired required competence.
i) Succession planning – percentage of key personnel due to retire within next two years and within one year.

7.3 Commerce

a) Bids for new work – number of new bids made for project work per accounting period.
b) Successful bids – percentage of successful bids converted to contracts per accounting period.
c) Projects started – project starts per accounting period.
d) Projects completions – project completions per accounting period.
e) Projects completed on time – percentage that overrun or are early.
f) Projects completed within budget – number by percentage (5%, 10%, 15% etc.) that are over budget and number by percentage (0%, 5%, 10%, 15% etc.) that are under budget.
g) Repeat work – percentage repeat orders from existing customers.
h) Financial turnover – financial turnover per accounting periods.
i) Financial profit – net profit per accounting periods.
j) Carbon accounting – credit/debit.
k) Debtors – number and amount.
l) Loans – outstanding owed by organisation.
m) Budget – number of significant positive and negative deviations from budget.

7.4 Data

a) Financial accounts – late production of reconciled accounts and audits occurrences, number of discrepancies.
b) Carbon accounts – late production and audit occurrences, number of discrepancies.
c) Material asset accounts – late production, discrepancies.
d) Government bodies submitted reports – number of reports submitted late.

7.5 Matter and energy

a) Business travel – business mileage classified according to: type of transport, office location, comparison with projects financial turnover.
b) Facility occupation – percentage current use of capacity of facilities.
c) Production capacity – percentage achievement of potential production capacity.
d) Facility energy use – use of gas, electricity and other types of energy per accounting period, and comparison with previous periods.
e) Facility water use – use per accounting period and comparison with previous periods.
f) Facility maintenance, inspection and testing (including cleanliness) - percentage of maintenance, inspection and testing schedule requirements completed on time.
g) Waste – levels of waste production and reuse per accounting period.

7.6 Suppliers

a) Approved suppliers – number of each class.
b) Supplier performance – number achieving each grade of performance within critical classes.

7.7 Normal structures and processes

a) Production/service capacity – production and/or service capacity and percentage achievement of potential production and/or service capacity.

7.8 Contingency structures and processes

a) Contingency plans – number awaiting approval.
b) Contingency plan exercises – percentage of exercises completed within required scheduled time by type.
c) Contingency plan use – number of uses of Contingency plans to respond to an event by type.

7.9 Change

a) Newly approved change initiatives – number of new approved change initiatives by type/criticality.
b) Change initiatives in progress – number progressing and overdue for completion by type and criticality.
c) Completed change initiatives – number completed by type and criticality.
d) Completed change initiatives performance – percentage not achieving objectives or needing further work.

7.10 Reactive investigation

a) Personnel accident frequency rate – number of accidents per 100,000 hours worked per year.
b) Environmental incident frequency rate – number of incidents per 100,000 hours worked per year.

c) Customer complaints and commendations frequency rates – number of complaints and commendations per 100,000 hours worked per year.
d) Contractual disputes – number of events by size.
e) Litigation events – number of commercial and criminal events.
f) Near misses – number of recorded near misses recorded and as ratio of actual loss events by type.

7.11 Planned monitoring

a) Proactive monitoring completed on time –percentage audits, inspections etc. not completed by scheduled date.
b) Non-conformities recorded – percentage recorded by type and criticality.
c) Observations recorded – percentage recorded and percentage accepted by type and potential.
d) Personnel suggestions – number submitted and percentage accepted by type and potential.

7.12 Review and action

a) Scheduled focused reviews – percentage completed on time.
b) Main management reviews – percentage completed on time.
c) Actions – number of principal actions recorded and percentage completed by action date by type.

Appendix 8: Getting started with the MSS

An organisation's management system is a valuable and critical asset and its design and implementation requires leadership, commitment and appropriate resourcing at all levels of the organisation to be successful. The following issues are intended to prompt the MSS implementation project team to focus on the critical issues.

The process of implementing a new management system or modifying an existing one should be managed as a project under the control of a senior responsible manager and a dedicated project team with a detailed project plan capable of being appropriately monitored and periodically reviewed.

8.1 Foundation Planning

The organisation should clarify or establish:

a) Its purpose, vision, mission and objectives,
b) The perceived principal benefit(s) or objective of the proposed new or changed management system,
c) What parts of the MSS are applicable to different parts of the organisation and who will be responsible for defining the detailed arrangements – this may include the assigning of responsibility for structure and process ownership,
d) The need for any covert arrangements,
e) Internal and external stakeholders that need to be consulted,
f) What existing management system elements are available or can be used from elsewhere and directly made use of,
g) The level of MSS compliance to be achieved – refer to section A.5.2 Compliance award levels,
h) The management system interfaces and how the organisation intends to interface with the MSS e.g. use of proprietary or non- proprietary IT systems – refer to sections A.7 MSS User Interfaces and 0 Data.
i) The structure of the new or changed management system and how the transition is intended to be made from that currently existing, if applicable – refer to section E.4.1 Management system structure,
j) Any aspects of the performance of the organisation or management system that are required to receive independent third party certification – refer to section A.5.4 Certification.

8.2 Project Organisation

The organisation should establish a project organisation that is suitable and sufficient to manage the design and implementation of the new or changed management system – refer to sections E.7.1.5 Projects, **Error! Reference source not found.** Organisation and E.2.2 Responsibilities and authorities. It should include the following individually appointed or dual roles depending on the size and complexity of the organisation:

a) A representative from top management to provide overall leadership, commitment, allocation of resources and liaison with top management.
b) Management system representative.
c) A project manager.
d) Internal and/or external expert adviser(s), as required – see C.2.3 Provision of expert advice and assistance and Table 1: Aid for identifying expert advice and support needs.

The project organisation may be carried forward to become the on-going team for managing the management system on behalf of top management. This then becomes a seamless chain of projects that maintains and continually improves the management system within the overall management

review and action process. This would normally be coordinated by the management system representative.

8.3 Project Management

The organisation should:

a) Decide if the new or revised management system will be implemented first as a prototype and/or across the whole organisation in stages or as a single exercise.
b) Establish an approved project plan covering the management system design and implementation with milestones, identified task interdependencies, resources and interaction with other parties such as certification bodies.
c) Assign and coordinate tasks.
d) Monitor and report progress.
e) Review progress and take appropriate action to align/realign project with objectives, as necessary.

8.4 Management System Design

The organisation's project team under the direction of the project manager should:

a) Decide what use is to be made of existing management system documentation.
b) Define the types of documents to construct the new or revised management system architecture – see Definition of Document Types.
c) Define the overall management system architecture paying attention to its functionality and elegance.
d) Populate this structure by defining the document titles, scope and responsibility for drafting and approving.
e) Draft the management system documents – see section C.4.2.2 Internal documents.
f) Arrange for peer review and comment by relevant personnel.
g) Prepare and approve final documents see section C.4.2.2 Internal documents.

8.5 Management System Implementation

The organisation's project team under the direction of the project manager should:

a) Brief staff and provide suitable and sufficient training on the new or changed management system.
b) Obtain approval from top management to implement the new or revised management system.
c) Issue new management system documents in their entirety or in planned stages.
d) Monitor implementation of management system and provide advice and support as required.
e) Monitor compliance using inspections and audits etc.
f) Conduct management reviews, define actions and close out.
g) Receive third party audits, as applicable, define actions and close out.
h) Establish on-going organisation structure to manage the management system – refer to section **Error! Reference source not found.** Organisation.

Appendix 9: Comparison with other Standards

The relationship between the structure of the MSS and other common standards is shown below in Table 11: MSS relationship with other common standards. The table is divided into the following principal sections corresponding to the structure of the MSS:

Table 11: MSS relationship with other common standards

	COMMON MANAGEMENT SYSTEM STANDARDS (specifications)												
MSS REQUIREMENT	ISO Annex SL 2012	ISO 9001	ISO 14001	OHSAS 18001	ISO 26000	ISO 27001	ISO 27002	ISO 31000	ISO 55001			PAS99	
A. INTRODUCTION													
1. MSS Structure													
1.1 Context of a Management System					6.2 7	A.6.1							
1.2 Plan-Do-check-Act								4.1 4.2 A.3.1	4.4				
1.3 Universal PDCA Twelve Element Structure													
2. Navigation of this document													
3. MSS Scope		1	1	1	1		1	1	1				
4. Covert arrangements													
5. Compliance, certification and scoring													
5.1 Compliance scoring system													
5.2 Compliance award levels													
5.3 Organisation size automatic clause exemptions		4.3											
5.4 Certification					7.8.4			1					
6. Management Principles					4	A.14.2.5	14.2.5	3					
B/D. GENERAL REQUIREMENTS													
0.1 Scope of organisation's arrangements	1 4.3	4.3	4.3	4.1 4.4.4	1	1 4.3		1	1 4.1 4.2 4.3			4.3	
0.2 Coherent functionality	4.4 5.1 6.1		4.4 5.1 7.5.1						4.1 5.1 5.2			4.4 5.1	

	COMMON MANAGEMENT SYSTEM STANDARDS (specifications)												
MSS REQUIREMENT	ISO Annex SL 2012	ISO 9001	ISO 14001	OHSAS 18001	ISO 26000	ISO 27001	ISO 27002	ISO 31000	ISO 55001			PAS99	
0.3 Stakeholder specific requirements	4.2								4.1 4.2 4.3			4.2	
0.4 Application of the MSS	4.4	4.4.1	4.4	4.1 4.4.1 4.4.4 4.4.6		4.4 5.1		1	4.1 4.2 4.3 4.4 5.1			4.4	
C/E.1 ASSESSMENT AND DEVELOPMENT OF CONTROLS – analysis and synthesis			8.1						4.4 5.1			4.4	
1.1 Foundation planning	4.1 4.2 5.1 6.1 7.1	4.1 4.2 4.4.2 5.1.2 7.1.1 8.2.1 8.3	4.1 4.2 5.1 6.1.1 6.1.3		5 6 7	4.5.1 6.1.1 7.1 A.8.1.1 A.8.1.1 A.8.1.2 A.17.2.1	8.1.1 8.1.2 8.2 8.2.2 12.6.1 18.1.4	4.3.1 A.1	4.1 4.2 4.3 5.1 5.2 5.3 6.1			4.1 4.2 7.1	
1.2 Strategic plan	5.1	5.1.1 7.1.1	5.1 6.1.3	4.4.1	5 6 7	5.1 7.1		4.2 A.1	4.1 4.2 4.3 5.1 5.3 6.1 6.2.1			5.1	
1.3 Policy statement	5.1 5.2	5.1.1 5.2	5.1 5.2 7.4	4.2 4.4.1 4.4.4 9.1.2	5 6 7	5.1 5.2 A.5.1.1 A.6.2.1	5 6.2.1	4.2 4.3.2 A.1 A.3.5	4.1 4.3 5.1 5.2 6.2.1			5.1 5.2	
1.4 Objectives	5.1 6.2	5.1.1 6.2	5.1 6.1.5 6.2.1	4.3.3 4.4.4	5 6 7.4.2	6.2		4.2 A.1 A.3.1	4.1 4.2 5.1 5.2 6.2.1			5.1 6.2	
1.5 Legislation and standards		5.1.2 8.2.2 8.6.5	6.1.3 9.1.2	4.3.2 4.3.3 4.5.2	5 6 7	A.18.1.1	18	4.2	4.2 6.2.1				
1.6 Prospect and risk assessment	6.1 8.1	4.4.2 5.1.2 8.3 8.4.2 8.6.5	6.1.4 8.2	4.3.1 4.4.7	5 6	6.1	6.2 8.3.2	5.4	4.2 4.3 5.1 6.1			6.1	
1.6.1 Prospect and risk assessment planning		6.1 8.6.5	6.1.2 6.1.3		7.3.2	6.1.1 6.1.2		4.3.2 5.3 A.2.1	4.2 4.3 5.1 6.2.1				
1.6.2 Classification of structures and processes						A.8.2.1 A.16.1.4	7.1.1 8.1.2 8.2 8.3.1 9.4.2 11.2.9 13.1.3 13.2.3 16.1.4 18.1.3		4.2 4.3				
1.6.3 Aspect and impact identification								5.4.2					
1.6.4 Prospect and risk analysis and synthesis								5.4.3 5.5					
1.6.5 Prospect and risk improvement		9.1.1		4.4.6		6.1.1 8.3 A.13.1 A.17.1.1 A.17.1.2		5.4.4					

	COMMON MANAGEMENT SYSTEM STANDARDS (specifications)												
MSS REQUIREMENT	ISO Annex SL 2012	ISO 9001	ISO 14001	OHSAS 18001	ISO 26000	ISO 27001	ISO 27002	ISO 31000	ISO 55001			PAS99	
						A.17.2.1							
1.6.6 Prospect and risk improvements analysis and synthesis						6.1.3		5.4.4					
1.6.7 Prospect and risk review			6.1.5			8.2 A.15.2.1		5.4.4					
1.6.8 Residual prospect, risk and controls acceptance								5.4.4					
1.7 Performance justification		8.6.1 9.1.3						5.4.4 A.2.2	4.2 5.1				
1.8 Management tools and techniques		9.1.2 9.1.3						5.4.3					
C/E.2 PERSONNEL			5.1					4.4	4.4 5.1				
2.1 Organisation		5.1.1 7.1.1	5.1 5.3 7.1	4.4.1		5.1 5.3	6.1	A.3.5	5.1 5.3			5.1	
2.1.2 Remote working						A.6.2.2	6.2.2						
2.2 Responsibilities and authorities	5.1 5.3	4.4.2 5.3	5.3 7.2	4.4.1		5.1 5.3 A.6.1.1 A.6.1.2 A.7.2.1 A.8.1.2 A.9.1.2 A.9.2.1 A.9.2.2 A.9.2.3 A.9.3.1 A.9.4 A.12.6.2 A.16.1.1	6.1.1 6.1.2 7.3.1 8.2.1 9.2.1 9.2.2 9.2.3 9.2.5 11.2.5	4.3.3 A.3.2 A.3.5	4.2 5.1 5.3				5.3	
2.3 Provision of expert advice and assistance		5.3 7.1.1 7.1.5 7.2	5.3 7.1			5.1	6.1.4						
2.4 Employment life cycle					6.6								
2.4.1 Recruitment					6.3	A.7.1	7.1 7.3						
2.4.2 Induction	5.1 7.3	5.1.1 5.2 5.3 7.3	5.1 5.2 7.3	4.4.1 4.4.2 4.4.3.2	6.4 7.5 7.4.1	7.3 A.7.2.1 A.7.2.2 A.7.2.3 A.9.3.1 A.11.2.9	7.2.1 7.2.2 7.2.3 7.3 8.1.3		5.1 5.3 6.2.1			7.3	
2.4.3 Appointment						A.7.3 A.13.2.4	9.2.1 9.2.2 9.2.3 13.2.4		5.3				
2.4.4 Competence	7.2	7.2 8.6.1		4.4.1 4.4.2		7.1 7.3 A.7.2.2						7.2	
2.4.4.1 Competence, education and training needs	7.3	5.1.1 7.1.5 7.2	7.2		7.4.1				5.1 5.3				
2.4.4.2 Competence development and assessment		7.2							5.3				
2.4.4.3 Education and training program evaluation						7							
2.4.4.4 Fitness					6.3								
2.4.5 Welfare					6.3								
2.4.6 Work absence and rehabilitation					6.3								
2.4.7 Post or role change									5.3				
2.4.8 Discipline	7.3				6.3	A.7.2.3	7.2.3						
2.4.9 Leaving					6.3	A.7.3 A.8.1.4	7.3 8.1.4						

	COMMON MANAGEMENT SYSTEM STANDARDS (specifications)												
MSS REQUIREMENT	ISO Annex SL 2012	ISO 9001	ISO 14001	OHSAS 18001	ISO 26000	ISO 27001	ISO 27002	ISO 31000	ISO 55001			PAS99	
						A.9.2.6	9.2.1 9.2.2 9.2.6						
2.5 Personnel Interactions				4.4.3									
2.5.1 Interfaces					5 6.8	A.6.1.3 A.6.1.4 A.13.2	6.1.3 6.1.4 12.1.2 13.2.2						
2.5.2 Communication, consultation, participation and reporting	5.1 5.3 7.4	5.2 7.4 8.2.1 8.2.4 8.4.3	7.3 7.4.1 8.2	4.4.1	5 7.5 7.6	5.1 A.5.1.1 A.16.1.2	13 16.1.2 A.13.2	A.3.4	4.2 5.3	6.2.1		7.4	
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