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**Quality management— Fundamental
concepts, principles and vocabulary**

**Proposal from the CQI derived from WG9000-10
Rev 7.1 CQI Position Paper on the future of the
ISO 9000 Family of standards**

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Introduction

0.1 General

The ISO 9000 family of standards has been developed to assist organizations, of all types and sizes, to develop and operate effective quality management systems. This family consists of 20 standards comprising three requirement standards and 17 guides.

The ISO 9000 series comprises the following four standards from the ISO 9000 family

— ISO 9000 describes fundamentals of quality management systems and specifies the terminology for quality management systems.

— ISO 9001 specifies minimum requirements for a quality management system where an organization needs to demonstrate its ability to provide products that fulfil customer and applicable regulatory requirements and aims to enhance customer satisfaction. ISO 9001 itself does not establish requirements for products. These requirements are generic and applicable to organizations in any industry or economic sector regardless of the offered product category

— ISO 9004 provides guidelines that consider both the effectiveness and efficiency of the quality management system. The aim of this standard is improvement of the performance of the organization and satisfaction of customers and other interested parties.

— ISO 19011 provides guidance on auditing quality and environmental management systems.

Together they form a coherent set of quality management standards facilitating mutual understanding in national and international trade.

The concepts, principles and terminology form the basis for all the standards within the ISO 9000 family.

0.2 Context

TBD

1 Scope

This International Standard describes fundamentals of quality management, which form the subject of the ISO 9000 family, and defines related terms.

This International Standard is applicable to:

- a) organizations seeking advantage through the adoption of a modern approach to managing the quality of its systems, their processes and their products;
- b) organizations seeking confidence from their suppliers that their requirements will be satisfied;
- c) those concerned with a mutual understanding of the terminology used in quality management (e.g. suppliers, customers, regulators);
- d) those internal or external to the organization who assess an organization's quality management system or audit it for conformity with the requirements of ISO 9001 (e.g. auditors, regulators, certification/registration bodies);
- e) those internal or external to the organization who give advice or training on quality management appropriate to that organization;
- f) developers of related standards.

2 Fundamental concepts and principles

2.1 *The concept of quality and its management*

2.1.1 The concept of organization purpose

Organizations are formed to fulfil a specific purpose in society and that purpose drives everything an organization does. For an organization to survive in the long term its purpose needs to be outwardly looking towards the society in which it operates. No longer is business performance measured solely in terms of economic performance.. Organizations of any type need to take into account ecological and social performance in addition to financial performance. In all other organizations economics is a restraint to what the organization and its managers can do.

Profit or surplus is important as a resource, a measure of success and must be sufficient to cover the risks (6) but when perceived as a primary purpose of an organization it encourages managers to look inwardly at financial returns instead of outwardly at the contribution an organization makes to society which is the ultimate judge of its performance. It is therefore vital that the true purpose of the organization is clearly communicated to all those with whom it is involved..

2.1.2 The concept of an external environment

An organization is bounded by its external environment and can adapt to that environment or seek to shape it to survive and achieve its aims. It may deliberately influence but cannot control all parts of that external environment or simply react to changes but must understand their influence on itself for the Organisation to survive and can choose which parts it works with and how it responds to change.

2.1.3 The concept of a management system

An organization is a purposeful, complex and dynamic entity that has a mission and one system of management for accomplishing that mission and delivering the desired outcomes. This management system covers the whole organisation and everything it does. It comprises the structure, processes and resources needed to establish an organization's policies and objectives and to implement the policies and achieve those objectives. The interactions of the parts are part of the system, and the system has attributes which do not belong to individual parts.

An organization's capability to deliver desired outcomes depends on its leadership's ability to align its mission, vision, values and culture with the strategies, policies, processes and resources it employs to achieve them.

Organizations that sustain their capability:

- a) are adaptive to their external environment;
- b) continually enhance their capability to change/adapt;
- c) develop collective as well as individual learning;
- d) use the results of learning to achieve better results.

An organization's outcomes can be intended or unintended, and anticipating their possible impact is an essential element in managing performance. Desired outcomes for all of the organisation's stakeholders are more likely to be achieved if its objectives and priorities are consistent with those desired outcomes.

Successful performance depends on identifying and managing risks to an organization's capability to deliver planned outcomes consistently.

For the purpose of study or external certification it may be convenient to examine this system from the perspective of particular objectives such as financial, quality, social responsibility, environment, health and safety etc. This may result in these different perspectives being labelled financial management system, quality management system, environmental management system etc. In reality these subsystems are parts of the whole system each of which can affect its behaviour or its properties but which cannot operate independently.

Although critical components need to be documented for effective communication, every aspect of the management system can never be fully documented. Any description of a system is at best a model or a particular perspective of reality and in some respects will always be wrong but will often be useful.

2.1.4 The importance of stakeholders

Organizations need to attract, capture and retain the support of those organizations and individuals they depend upon for their success. These are an organization's stakeholders and include customers, investors, employees, suppliers and society. Each has a distinct role in influencing the manner in which an organization fulfils its mission so that managing the expectations of these groups of stakeholders becomes a critical success factor in any organization. The organisation has no control or choice over some stakeholders, such as society and its political impacts but does have a choice over who its employees, customers and suppliers are and what outcomes are delivered to them.

Of all the stakeholders only the customer imposes demands¹ for its goods and services. The needs of the other stakeholders place constraints upon an organization's strategy for meeting those demands and only arise because of an organization's particular strategy. Without customers there is no revenue and without revenue there is no business or community to serve. Customers are therefore the most important stakeholder but in meeting their demands, organizations are obligated to operate in such a manner that satisfies the legitimate needs and expectations² of the other stakeholders although they do have a choice as to which customers to work with. Consequently stakeholder management is a key aspect in defining objectives.

2.1.5 The importance of quality

The degree to which stakeholder expectations are met is a function of the quality of an organization's intended outputs which include goods and services, dividends, information and working conditions. Consequently quality is a term to express the gap between a need and its achievement. Outputs of

¹ The term demand is used here in the sense of organizations creating a demand for their goods and services. They don't create a demand for the constraints that other stakeholders impose and would rather those constraints did not exist, but that is the penalty to be paid in the environment in which they wish to operate

² Legitimate needs and expectations are those the fulfilment of which does not decrease the ability of any other stakeholder to satisfy their legitimate needs and expectations

relatively high quality³ are more likely to satisfy these expectations whereas outputs of relatively lower quality may lead to dissatisfaction and withdrawal of support from those stakeholders affected.

Quality is perceived in several ways:

- a) freedom from deficiencies where the gap is the level of deficiency regardless of significance;
- b) conformity with customer requirements where the gap is the degree of conformity regardless of the significance of any nonconformities;
- c) satisfying stakeholder needs and expectations where the gap is the degree of satisfaction regardless of the stipulated requirements.

These perceptions result in the concept of little q and big Q, where little q is striving for conformity and big Q is striving to satisfy not only customers but all stakeholders. It is not conformity that satisfies stakeholders but outputs that deliver satisfactory outcomes for them. However, following the determination of product and process features through specifications and procedures and their evaluation for delivering acceptable outputs, conformity to those specification and procedures becomes an equitable basis on which to judge the quality of the output.

There are three primary reasons for paying attention to quality:

- a) loss of market share caused by competing products possessing features that are perceived as better meeting customer needs and a lower frequency of service failures;
- b) living in a technological society put us at the mercy of the continuing operation of the goods and services that make such a society possible. continuing operation of those goods and services depends absolutely on the quality built into them;
- c) an awareness of enduring excessive costs due to chronic quality-related wastes e.g. rework, scrap, unplanned downtime and waiting time due to errors or people simply not doing what they intended to do and responding to customer complaints.

Consequently quality needs to be the first priority in any organization. Companies that put 'profits first' have found themselves losing market position because of the inferior quality and price competitiveness of their goods and services. When quality is the first priority there are no boundaries. With every product there is a service e.g. delivery or after sales, and with every service there is product e.g. information or materials. It would be inequitable to pursue a quality first approach with products and a different approach with services, e.g. putting quality first in the supply of electricity but not in its generation, putting quality first in the supply of automobiles but not in their delivery and servicing.

It has to be recognised that putting customers first is not the same as putting quality first because organizations can control the quality of its outputs but not its customers. Customers often think short term, don't know what they need and often don't care about the impact of their demands on other stakeholders.

The quality of an organization's goods and services is judged by the ability of their inherent characteristics to not only satisfy particular customers but also to capture a sustainable market."

2.1.6 The concept of quality management

2.1.6.1 The purpose of quality management

For an organization to fulfil its mission (or purpose) and achieve its strategic objectives it has to be managed and every job in an organization has to be directed towards these objectives if its mission is to be fulfilled effectively.

An organization's strategic objectives are derived from understanding and prioritising the mix of stakeholder needs relative to its mission and these will include objectives for marketing, innovation, human, financial and physical resources together with financial, social and ecological performance including ethics. Among these objectives has to be the objective of delivering outputs of a quality that satisfy stakeholder's expectations as economically as is practical whatever the chosen market,

³ High quality is a state where all characteristics of an entity meet the requirements and consequently low quality is a state where few or no characteristics of an entity meet the requirements

product and associated resources. The purpose of quality management is therefore to provide an organization with the capability of delivering the required outputs and managing that capability in a way that produces the desired outcomes for the stakeholders.

2.1.6.2 Quality as the first priority

Organizations that have made quality their first priority have demonstrated a significant improvement in the quality of their goods and services and as a result improved their safety and reliability. This has led over time to a substantial increase in productivity and price competitiveness leading to increase profit and market share. Quality management is therefore of strategic importance in every organization seeking to produce high quality goods and services, at low cost and high productivity which benefit society and the ecology thus seeking sustained success. Consequently organizations need to set strategic quality objectives that are derived from the needs and expectations of its stakeholders and develop strategies and structures for achieving those objectives.

2.1.6.3 The concept of quality planning

For quality to be the first priority of an organization it follows that this needs to be translated into objectives and plans for achieving those objectives. This has evolved as the concept of quality planning where effort is focussed on understanding customer needs, developing and validating product features that respond to those needs and developing and validating processes capable of producing those product features.

2.1.6.4 The concept of quality control

Variation is inherent in all characteristics; some variation is unpredictable and can yield unpleasant surprises if left undetected and other variation is random and predictable. As variation can be detrimental to an organization's performance the concept of quality control has evolved to set standards of performance and detect and remove undesirable variation in order to prevent change in accepted standards. If performance becomes predictable, organizations can plan the future with confidence that the plans will be carried out.

The detection and removal of variation may be effected:

- a) before an output is produced by such means that anticipates potential problems and institutes techniques that eliminate particular modes of variation through product and process design;
- b) during the production of an output by such means that detects and removes variation as it occurs so that subsequent processing may continue;
- c) after an output has been produced by such means that rectify problems before release of the output.

This results in there being four types of costs;

- a) costs of producing an output assuming variation in performance is not possible;
- b) additional costs of detecting and removing variation before its occurrence (prevention cost);
- c) additional costs of detecting and removing variation either during or after its occurrence (appraisal cost);
- d) additional costs of failing to detect and remove variation before release of product to customers (failure cost).

One of the objectives of quality management is to optimise the above costs so that resources deployed to control quality provides a benefit in terms of improved quality, increased profitability and enhanced competitiveness.

2.1.6.5 The concept of quality improvement

Organizations not only need to maintain standards of performance but also look for better ways of achieving their objectives and raise standards of performance to unprecedented levels in order to sustain success as new threats and opportunities emerge in their operating environment.

The concept of quality improvement has evolved for improving performance by better control of quality, by better utilization of resources and better alignment of objectives with those of the organization's stakeholders.

When undertaking improvement, the performance of each variable can be improved independently until the slack among them is used up. Then the perceived set of independent variables changes to a formidable set of interdependent variables. Improvement in one variable would come only at the expense of the others.

Corrective action is not improvement, it is part of quality control and it simply restores performance to where it should have been.

Quality improvement differs from quality planning in that quality improvement is directed at chronic problems whereas quality planning is directed at meeting stakeholder oriented objectives

2.1.6.6 The concept of quality assurance

To be able to buy with confidence customers need to have trust in a particular product from a particular organization and this trust can only be obtained through an organization developing its reputation for its capability to control the quality of its goods and services and when necessary being prepared to demonstrate this capability to others.

In addition, top management need safeguards against inadvertent deterioration in standards that may arise through changes in personnel, reorganizations and the unforeseen consequences of planned changes and localised initiatives.

For top management to have confidence in the integrity of the management system, and for customers to have trust in the products of an organization, there needs to be a degree of independent verification of performance that is proportional to the significance of failure.

The concept of quality assurance has evolved to provide to those concerned, when necessary, the evidence needed to establish confidence that quality is being managed effectively and desired standards of performance maintained at all levels in the organization.

There are four concepts that help the provision of assurance:

- a) the situation as formally described and displayed called the manifest situation;
- b) the situation as it is assumed to be by the individual concerned called the assumed situation;(there may not be consistency between what is formally described and how it is interpreted by those to whom it applies);
- c) the situation as revealed by systematic exploration and analysis called the extant situation. (it can never be completely known);
- d) the situation as it would have to be to accord with the real properties of the field in which it exists called the requisite situation.

The ideal situation is that in which the manifest, the assumed, the extant and the requisite are as close as possible in line with each other.

2.1.6.7 Quality dependencies

Achieving the desired level of quality depends upon an organization possessing competent people, capable processes and adequate resources. Quality cannot be inspected into goods and services it has to be built-in through robust product and process design and faithful implementation of those designs by people possessing the necessary competences. Inspection simply establishes the degree to which goods and services conform to requirements.

2.1.6.8 People

An organization's performance emerges from how people behave, rather than what people document or say they do and this depends upon the degree to which they are involved in decisions that affect their work. All people are different and the performance of anyone is largely governed by the system

in which they work. Empowerment can create conditions in which people are motivated because it offers a way of obtaining higher level of performance without strict supervision.

The more complex an organization the more numerous the interrelationships and more resilient the organization will be to fluctuations in the performance of individuals. Consequently when individuals fail to do their job, there will be others who will step in to support them and fill the void. However, sustained success will only be assured if harmonious relationships have been nurtured and this depends on continual good leadership.

It is also important for sustained success in an organization that its people understand how the organization works⁴ and in particular possess:

- appreciation of systems thinking: understanding the nature and properties of systems and how the interaction of parts produce the organization's outcomes and not the individual parts themselves;
- knowledge of variation: the range and causes of variation in quality, and use of statistical sampling in measurements;
- theory of knowledge: the concepts explaining knowledge and the limits of what can be known;
- knowledge of psychology: concepts of human nature.

2.1.6.9 Processes

All work is accomplished by a process and a process can be designed to produce outputs with any desired features or characteristics by altering the variables of inputs, activities, resources, influences and controls. It follows therefore that by designing and managing processes effectively they will consistently and continually produce outputs of the desired quality.

Objectives are achieved through processes and there will be strategic objectives directing the whole organization towards its vision and mission and tactical objectives directing parts of the organization to achieve specific results.

Strategic objectives are generally achieved through a network of processes that span several functions or departments within an organization. These macro-processes⁵ can be classified into three groups⁶:

- a) those which create and satisfy customer demands e.g. marketing, product development, production, service delivery, sales and after sales service;
- b) those which manage the enterprise e.g. Strategic planning, organization development, management system design, performance evaluation and improvement;
- c) those which supply all processes with resources e.g. human resources, materials, facilities management, IT, finance and maintenance.

Tactical objectives are derived from the strategic objectives and achieved through processes executed primarily by a single function with a low level of support from other functions. These micro-processes⁷ have a narrow scope often limited to a single task or few steps e.g. producing a plan, assigning tasks, making a component, checking conformity, correcting errors and producing a report but they are connected with other micro-processes to form a network of processes that constitute a macro-process serving a specific strategic objective.

Effectively managed processes are those which are designed to achieve specific objectives, are subject to continual monitoring, review and improvement consistent with those objectives as illustrated in Figure 1. This applies to both macro and micro processes.

⁴ Deming referred to this as a system of profound knowledge

⁵ Although it is now common practice to refer to cross functional processes as business processes it is not a term that sits comfortably in all organizations particularly not-for-profit organizations therefore the term macro-process is used instead.

⁶ It is common practice to divide business processes into three types. Management processes, operational processes and supporting processes but the classification is based on whether a process is directly or indirectly involved with supplying product or on the degree of value adding not on whether its objectives are aligned. Consequently processes that serve management or operations less directly or add less value (such as audits, public relations, branding, process design).are placed in the supporting category

⁷ Processes executed by a single function are referred to as work processes, departmental processes, operational processes etc and therefore the term micro-process is used as a generic term

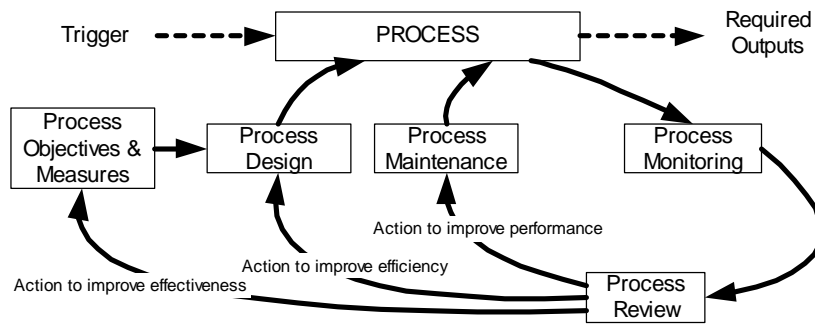


Figure 1 A managed process (How consistent results are achieved)

Process objectives differ from product objectives in that they relate to the outputs the process is designed to produce e.g. an order that the organization is capable of fulfilling, a design that reflects customer needs, a product that conforms to the specification or a delivery that exceeds customer expectations.

Process measures are characteristics by which achievement of the process objectives is judged e.g. on time delivery, yield, injuries, emissions and downtime. These measures are used in process monitoring to determine the behaviour, performance and efficiency of the process.

Process reviews assess the results of process monitoring to determine whether the process needs to be adjusted to improve its performance through better control, improve its efficiency through better utilization of resources or improve its effectiveness through better alignment of the process objectives and measures with the needs and expectations of the organization’s stakeholders.

Process maintenance plans and carries out the agreed process changes to bring about better control.

The relationship amongst the key elements that need to be managed to produce outputs of the required quality is illustrated in Figure 2.

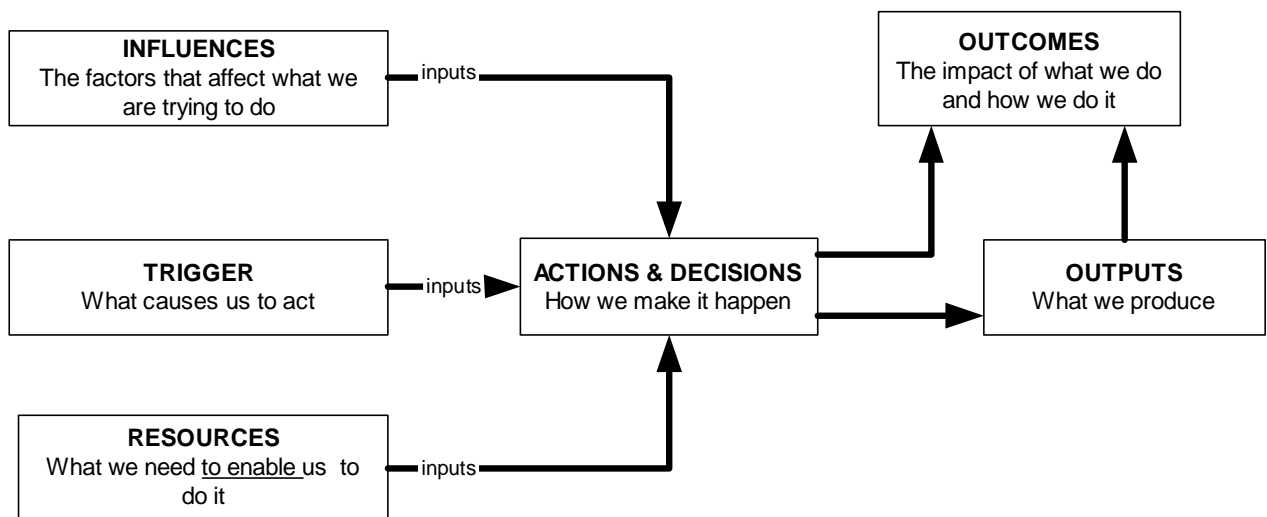


Figure 2 An operating process (How work gets done)

Although it is customary to think of a process as transforming inputs into outputs as illustrated in Figure 1, not all inputs will be transformed by the process.

Examples of the elements in this diagram are as follows:

Trigger (What causes us to act)- E.g. an event, a thought, a diary date, an instruction, a demand;

Influences (The factors that affect what we are trying to do) Internal: E.g. policies, values, company culture, performance measures, assumptions, personal agendas, process objective, corporate objectives, procedures, stock availability. External: E.g. legislation, standards, customer requirements, stakeholder expectations, risks, critical success factors;

Resources (What we need to enable us to do it) – E.g. people, information, equipment, energy, premises, space, materials, finance, knowledge, skills, competencies;

Outputs (What we produce) – E.g. goods, a service (a “product” or “deliverable”);

Outcomes (The impact of what (and how) we produce) - Positive: E.g. satisfied customer, enhanced reputation, increased knowledge. Negative: E.g. environmental damage, disillusioned staff, lessons not learned;

The effectiveness and capability of, and the risks within, an organization can best be determined by (i) measuring the results of past activities and (ii) analysing indicators that help to predict future performance.

Continuing success depends on achieving an appropriate balance between conformity and the reduction of variation on the one hand, and innovation, responsiveness and improvement on the other.

2.1.6.10 Resources

For a process to deliver the desired outputs it has to be resourced and the requirement for these resources built into the process design. When the process is triggered the necessary resources have to be available for the process to maintain its capability. Consequently, the planning, acquisition, deployment and maintenance of resources of the requisite quality and quantity are essential for processes to maintain their capability. It is also essential that obsolete or redundant resources and resources of unsatisfactory quality are disposed of in ways that satisfy the expectations of all stakeholders.

Customers need confidence that their suppliers can meet their quality, cost and delivery requirements and have a choice as to how they acquire this confidence. They can select their suppliers:

- a) purely on the basis of past performance, reputation or recommendation;
- b) by believing the self assessment statement of capability made by a supplier
- c) by assessing the capability of potential suppliers themselves;
- d) on the basis of an assessment of capability performed by a third party.

National and International standards have been developed to assist customers translate their needs into common product and process quality requirements that will ensure uniform acceptance criteria are used in designing, producing and delivering those goods and services. These may be used to supplement a customer’s own technical requirements and national and international statutory and regulatory requirements.

ISO 9001 has been developed to enable customers to acquire the level of confidence they need (i.e quality assurance) by being used as the basis of assessment in modes (b), (c) or (d) above. ISO 9001 specifies requirements for a quality management system and does not establish requirements for goods and services. ISO 19011 has been developed to assist customers in assessing the capability of potential suppliers and to assist those suppliers to assess the capability of their own management system.

Organizations may need to achieve sustained success in what can be a complex, demanding and ever changing environment. This depends on their capability to:

- a) identify the needs and expectations of their customers and other stakeholders;
- b) convert customer needs and expectations into goods and services and services that will satisfy them;
- c) attract customers to the organization;
- d) supply the goods and services that meet customer requirements and deliver the expected benefits;
- e) operate in a manner that satisfies the needs of the other stakeholders.

ISO 9000 and ISO 9004 have been developed to assist organizations develop, operate and maintain effective management systems that deliver conforming goods and services in a manner that satisfies the expectations of all stakeholders.

2.2 Quality management principles

This section defines the principles and application criteria which characterise effective quality management. Principles are needed to help people determine the right things to do given the situation they are seeking to manage. This concept is illustrated in Figure 3. The more prescription there is, the more people become immersed in detail and lose sight of their objectives therefore principles should help people understand why they should follow the prescription. Application criteria are needed to ensure effective application of the principles. Applying the principles defined in this section will enable people to maintain a clear focus on an organization's objectives.

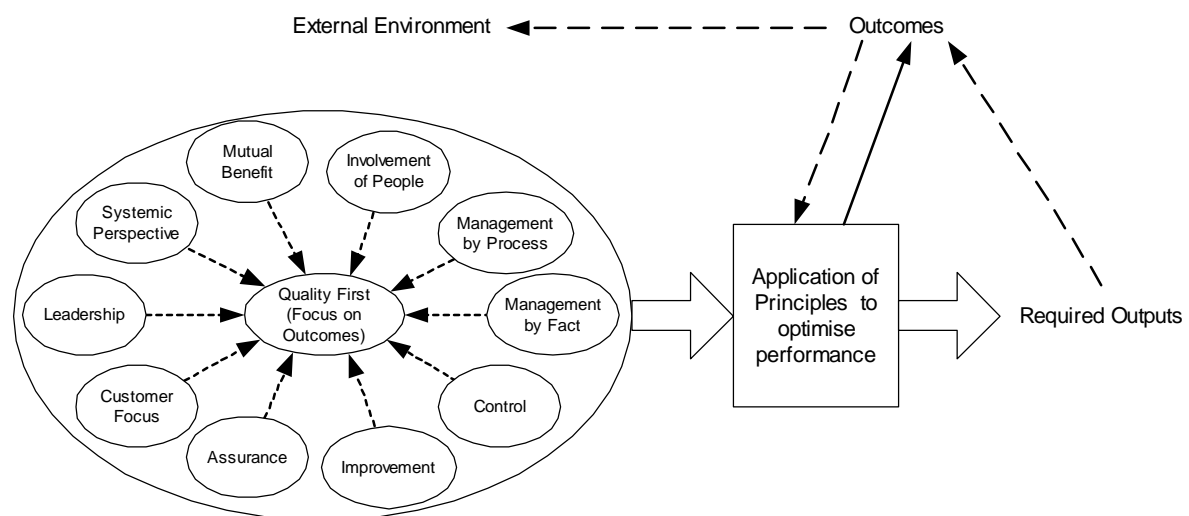


Figure 3 Applying the quality management principles to achieve an organization's objectives

These principles are derived from the fundamental concepts as shown in Table 1.

Table 1 Relationship between concepts and principles

Fundamental concept	Associated principles
Organization purpose	Leadership
External environment	Systemic perspective
Management system	Management by process Systemic perspective Customer focus Leadership
Importance of stakeholders	Mutually beneficial relationships Customer focus
Importance of quality	Quality first
Quality management	Leadership Assurance Control Improvement Management by fact
Achieving quality through effectively managed people, processes and	Involvement of people Leadership

Fundamental concept	Associated principles
resources	Systemic perspective Management by process
Role of standards	Customer focus Assurance Control Mutually beneficial relationships

2.2.1 Customer focus

Organizations depend on their customers and therefore need to understand current and future customer needs and expectations and strive to satisfy those needs and expectations.

An organization applying the customer focus principle will be one in which people:

- a) listen to their customers and understand the needs and expectations of those customers the organization chooses to work with and are sensitive to their preferences;
- b) meet customer requirements in a way that meet the needs and expectations of all other stakeholders;
- c) communicate these needs and expectations throughout an organization;
- d) acquire the knowledge, skills and resources required to satisfy an organization's customers;
- e) measure customer satisfaction and act on results;
- f) understand and pro-actively manage customer relationships especially where their expectations might not be met;
- g) relate their behaviour, actions and objectives directly to customer needs and expectations;
- h) act on the results of customer satisfaction measurements and improve their performance.

2.2.2 Quality first

To ensure productivity, safety, efficiency and effectiveness the quality of work must be the number one priority at all levels.

An organization applying the quality first principle will be one in which people:

- a) mean and do what they say when they say they will do it;
- b) can be trusted to supply the required outputs of the required quality on time;
- c) find the best value solutions that fulfil the requirements;
- d) are authorised to stop a process that is going out of control;
- e) don't compromise on the quality of work in return for short term gain;
- f) act ethically and with transparency in what they do to build trust;
- g) help colleagues to fulfil process objectives;
- h) are aware of what they do to others and Society generally and manage any risk of the impact of their outcomes before they become a reality.

2.2.3 Leadership

Leaders establish unity of purpose and direction for an organization. They create and maintain the internal environment in which people are engaged in achieving the organization's objectives.

An organization applying the leadership principle will be one in which leaders:

- a) establish and communicate a consistently clear vision of the organization's future;
- b) establish shared values and ethical role models at all levels of the organization;
- c) recruit people whose values and behaviour align with those of the organization;
- d) are proactive and lead by example by behaving in a way that is consistent with the organisation's, mission, vision and values;
- e) listen to their people and understand the needs of their team and help to meet them;
- f) understand and respond effectively to changes in the external environment;
- g) embrace discontinuous change (24) and assist evolution and breakthrough change;

- h) extract high levels of performance from themselves and a similar level of performance from those they work with;
- i) consider the needs of all stakeholders;
- j) build trust, eliminate fear and act ethically;
- k) provide people with the required resources and freedom to act with responsibility and accountability;
- l) promote open and honest communication;
- m) educate, train and coach people;
- n) set challenging objectives including measures and targets aligned to an organization's mission and vision; (in this context objectives are the results to be achieved, measures are the characteristics by which performance is judged and targets are the level of performance to be achieved);
- o) communicate and implement a strategy to achieve these objectives;
- p) use performance measures that encourage behaviour consistent with these objectives.

2.2.4 Involvement of people

People at all levels are the essence of an organization and their full involvement enables their abilities to be used for an organization's benefit.

An organization applying the involvement of people principle will be one in which people:

- a) accept ownership and responsibility to solve problems;
- b) actively seek opportunities to make improvements;
- c) actively seek opportunities to enhance their competencies, knowledge and experience;
- d) freely share knowledge and experience in teams and groups;
- e) focus on the creation of value for customers;
- f) listen to what the leaders want for the organization and are innovative and creative in furthering the organization's objectives;
- g) represent their organization more positively to customers, local communities and society at large;
- h) derive satisfaction from their work;
- i) are enthusiastic and proud to be part of an organization;
- j) are supported in their career development and personal issues.

2.2.5 Management by process

Objectives can be achieved more effectively and efficiently at any level if the work to achieve them is managed across an organization regardless of the functions or levels of those involved in executing the work.

An organization applying the process approach principle will be one in which people:

- a) are aware of the chain of processes that deliver an organization's outputs, in which processes they work and how their work contributes to the quality of these outputs;
- b) know the objectives they have to achieve and the process that will enable them to achieve them;
- c) know what measures will indicate whether the objectives have been achieved;
- d) have clear responsibility, authority and accountability for achieving the objectives;
- e) perform only those activities that are necessary to achieve these objectives;
- f) assess risks to success and put in place measures that eliminate, reduce or control these risks;
- g) know what resources, behaviours, information and competences are required to achieve the objectives;
- h) know whether a process is achieving its objectives as measured;
- i) find better ways of achieving the process objectives and of improving process efficiency;
- j) regularly confirm that the process objectives including the measures and targets remain relevant to the needs of an organization.

2.2.6 Systemic perspective

The component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation.

An organization in which people take a systemic perspective will be one in which they:

- a) seek to understand the big picture;
- b) observe how elements within systems change over time, generating patterns and trends;
- c) identify the circular nature of complex cause and effect relationships;
- d) surface and test assumptions;
- e) consider how mental models affect current reality and the future;
- f) find where unintended consequences emerge;
- g) uses understanding of system structure to identify possible leverage actions;
- h) recognize the impact of time delays when exploring cause and effect relationships;
- i) recognize that a system's structure generates its behaviour;
- j) change perspectives to increase understanding;
- k) consider an issue fully and resists the urge to come to a quick conclusion;
- l) consider both short and long-term consequences of actions;
- m) check results and change actions if needed.

2.2.7 Improvement

The pursuit of improvement strategies is essential for organizations to maintain and change their performance over the long term.

The improvement process consists of a series of universal steps as follows (27):

- a) study performance to identify and prove the need for improvement;
- a) determine the objective of the improvement;
- b) conduct a feasibility study to establish that improvement is feasible within prevailing economic constraints;
- a) define the means by which the objective will be achieved;
- b) organize the resources to implement the improvement plan;
- c) carry out research, analysis and design to produce a solution and credible alternatives;
- d) model and develop the best solution and verify it fulfils the objective of the improvement;
- e) identify and overcome any resistance to change;
- f) implement the change in all applicable areas;
- g) put in place controls to hold the new level of performance.

This sequence of steps can be applied at any level at which objectives are specified. It may also be applied to the development of new products and processes and to improvements in product features and processes for producing those product features.

An organization applying the improvement principle will be one in which people:

- a) challenge the status quo without fear;
- b) continually look for ways in which the quality of goods, services, processes and systems can be improved for the benefit of an organization's stakeholders;
- c) apply the basic improvement concepts of incremental, breakthrough and transformational improvement as appropriate;
- d) use periodic assessments against established criteria of excellence to identify areas for potential improvement;
- e) improve the efficiency and effectiveness of processes using relevant problem solving and improvement techniques;
- f) are educated and trained in the methods and tools of improvement;
- g) understand that improvement arises from doing things differently not by doing things in the same way;
- h) understand that desired outcomes arise from directing effort towards doing the right things and not only at doing things right;
- i) understand that improvement which is directed at improving the parts taken separately may not improve the overall performance of the system.

2.2.8 Management by fact

Effective decisions are based on the analysis of data and information.

An organization applying the factual approach principle will be one in which people:

- a) define performance measures that relate to the quality characteristics required for the process, or product to be measured;
- b) take measurements and collect data and information relevant to the product, or process objective;
- c) ensure that the data and information are sufficiently accurate, reliable and accessible;
- d) analyse the data and information using valid methods;
- e) understand the value of appropriate statistical techniques;
- f) understand that past performance is not necessarily indicative of future performance;
- g) use cost of quality data to inform decision makers of the economical significance of results;
- h) make decisions and take action based on the results of logical analysis balanced with experience and intuition.

2.2.9 Mutually beneficial relationships

Every organization depends on the support of its investors, customers, employees, suppliers and the community to achieve its strategic objectives and needs to foster a mutually beneficial relationship in exchange for the risks they bear.

An organization applying the mutual beneficial relationship principle will be one in which people:

- a) have mutual respect for the needs of others regardless of their role in supporting an organization;
- b) identify and select key suppliers on the basis of their ability to meet requirements without compromising quality;
- c) achieve quality requirements without compromising health, safety and the natural environment;
- d) establish external relationships that balance short-term gains with long-term considerations for an organization and society at large;
- e) create clear and open internal and external communications;
- f) initiate joint development and improvement of goods, services and processes;
- g) jointly establish clear understanding of stakeholder needs;
- h) share information and future plans;
- i) recognize supplier improvements and achievements;
- j) engage with each of the stakeholders as appropriate when assessing the system's performance.

2.2.10 Assurance

The need for confidence in the integrity of the provisions made to create and supply goods and services increases in proportion to the complexity of organizations and their goods and services.

The assurance process consists of a series of universal steps as follows:

- a) determine how objectives have been derived and their achievement planned;
- b) review the plans to verify that, if followed, they will result in stakeholder satisfaction;
- c) plan and conduct audits to verify the plans are being followed and the objectives met.

An organization applying the assurance principle will be one in which managers :

- a) understand the requirements an organization is under obligation to satisfy;
- b) understand the complexity of the plans for meeting these requirements and confirm that these plans, if followed, will deliver outputs that meet the requirements;
- c) decide the level of assurance required on the basis of the risks that will be encountered in implementing these plans;
- d) gather objective evidence that plans are being followed;
- e) gather objective evidence that requirements are being met.

2.2.11 Control

To attain and maintain standards for performance, work needs to be under control and this only arises when those with responsibility for the work are aware of those standards and are able to regulate the variables that cause variation in their performance.

The control process consists of a series of universal steps abbreviated as follows:

- a) determine the quality objectives for the characteristics to be controlled in terms of the units of measure and target values;
- b) establish sensing devices to measure the characteristics in terms of the unit of measure;

- c) conduct measurement and compare actual performance with the objectives;
- d) act on the difference.

This sequence of steps can be applied at any level at which objectives are specified.

An organization applying the control principle will be one in which people:

- a) are not held accountable for results over which they have no control;
- b) decide what needs to be controlled (the objective) on the basis of what is important for an organization to meet the needs of its stakeholders;
- c) develop or choose appropriate units of measure for the parameters to be controlled;
- d) establish or choose a standard level of performance or target value that is consistent with the organization's objectives and communicate such standards to those concerned before work commences;
- e) create or choose capable sensory devices for measuring characteristics either before, during or after those characteristics have been produced depending on their significance;
- f) utilize the necessary resources for carrying out the required measurements;
- g) undertake the planned measurements and compare potential or actual performance with the target at a stage in the process where correction of any potential or actual variation detected is economic;
- h) ensure the results of measurement are transmitted to the appropriate levels of the organization in a form suitable for prompt decisions to be taken on the action needed;
- i) verify the validity of the reported results, evaluate their economic and statistical significance and discover the factual cause of variation from the standard before action is taken;
- j) evaluate alternative courses of action and ensure that decisions are taken in a timely manner by the people who are accountable for the results of the particular process under control;
- k) are motivated to take the action that has been agreed to bring performance in line with the standard in a timely manner;
- l) are motivated to verify that the action taken has had the desired effect and performance has returned to normal.