**THE ROLE OF QUALITY IN PERFORMANCE MANAGEMENT**

In today's competitive global business environment, quality is one of the key ways in which a business can

differentiate its product or service, improve performance and gain competitive advantage. Quality can form

a key part of a strategy.

**Quality** can be defined in a number of ways:

• Is the product/service free from errors and does it adhere to design specifications?

• Is the product/service fit for use?

• Does the product/service meet customers' needs?

**Quality management** involves planning and controlling activities to ensure the product or service is

fit for purpose, meets design specifications and meets the needs of customers. Quality management should

 lead to improvements in performance.

**Quality control** involves a number of routine steps which measure andcontrol the quality of the

product/service as it is developed.

**Quality assurance** involves a review of the quality control procedures, usually by an independent third

party, such as ISO It aims to verify that the desired level of quality has been met.

**Quality certification**

The International Organisation for Standardisation (**ISO**) is one of the major bodies responsible for producingquality standards that can be applied to a variety of organisations. The ISO 9000 quality standards have been adopted by many organisations. An ISO 9000 registered company must:

• submit its quality procedures for external inspection

• keep adequate records

• check outputs for differences

• facilitate continuous improvement.

A certified company will be subject to continuous audit.

**Quality­related costs**

• Monitoring the costs of quality is central to the operation of any quality improvement programme.

• KPIs should be developed based on the costs of quality and these can be used as a basis for staff rewards.



The organisation’s costing system should be capable of identifying and collecting these costs.  This will lead to a greater management focus on quality since ‘what gets measured gets done’.

**Quality management systems**

A **quality managementsystem** (QMS) is a set of co­ordinated activities to direct and control an organisation

in order to continually improve its performance.

The total cost of conformance is the cost of operating a QMS.  The more rigorous the QMS, the lower the

costs of non­conformance will be.

**Implementing a QMS**

Delivering products which meet the desired level of quality will only occur if all the factors that have an

impact on quality are managed effectively. A QMS should pervade the whole organisation recognising the

quality impact of all areas of the organisation.  There are a number of ways of implementing a QMS.

For example, ISO 9001:2005 recommends that the design should be based on 8 principles:

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**Impact of a QMS on performance management**

The adoption of a QMS should complement an organisation's strategy and help it in achieving its quality

objectives. An effective QMS should:

• minimise the overall costs of quality

• improve customer satisfaction due to higher levels of quality

• improve staff morale and productivity due to the involvement and pride taken in the work done.

**Quality practices**

**Kaizen Costing**

**Kaizen** is a Japanese term for the philosophy of continuous improvement in performance via small, incremental steps.

**Characteristics:**

* Kaizen involves setting standards and then continually improving these standards to achieve long-term sustainable improvements.
* The focus on eliminating waste, improving processes and systems and improving productivity.
* Involves all areas of the business.
* Employees often work in terms and are empowered to make changes.
* Allows the organization to respond quickly to changes in the competitive environment

**Kaizen costing** focuses on producing small, incremental cost reductions throughout the production process the product’s life.

One of the main ways to reduce costs is through the elimination of the seven main types of waste:

* **Over-production** – produce more than customers have ordered.
* **Inventory –** holding or purchasing unnecessary inventory.
* **Waiting –** production delays/idle time when value is not added to the product.
* **Defective units –** production of a part that is scrapped or requires rework.
* **Motion –** actions of people/equipment that do not add value.
* **Transportation –** poor planning or factory layout results in unnecessary transportation of materials/work-in-progress.
* **Over-processing –** unnecessary steps that do not add value.

**Steps in Kaizen costing**

During the design phase, a target cost is set for each production function.

The target costs are totaled to give a total target cost for the product. This becomes the baseline for the first year of production

As the production process improves, cost reductions reduce the baseline cost.

Cost reduction targets are set on a regular (e.g. monthly) basis and variance is carried out at the each period to compare the target cost reduction with the actual cost.

**Total Quality Management**

Total Quality Management (TQM) is a philosophy of quality management that originated in Japan in the 1950’s.

Fundamental features of TQM:

* **Prevention of errors before they occur:** The aim of TQM is to get things right first time. This contrast with the traditional approach that less than 100% quality is acceptable. TQM will result in an increase in prevention costs, e.g. quality design of systems and products, but internal and external failure will fall greater extent.
* **Continual improvement:** Quality management I s not a one-off process, nut is the continuous examination and improvement of processes.
* **Real participation by all:** The ‘total’in TQM means that everyone in the value chain involved in the process, including:
* Employees – they are expected to seek out, identify and correct the quality problems. Teamwork will be vital.
* Suppliers – quality and reliability of suppliers will play a vital role.
* Customers – the goal is to identify and meet the needs of customers.
* **Management commitment:** Managers must be committed and encourage everyone else to be quality conscious.

Examples of **performance measures** in TQM environment include:

* Monetary measures – cost of rectification
* Non-monetary measures – percentage of wastage
* Variance analysis – care must be taken with regards to traditional performance reports such as favorable price variances, these can arise because of using poorer quality resources
* Targets or benchmarks must be set against which performance of suppliers can be measured
* Outputs too must be measured for quality against pre-determined targets.

**Just­in­time**

**Just­in­time (JIT)** is a demand­pull system of ordering from suppliers which  aims to reduce inventory

levels to zero. JIT applies to both production within an organisation and to purchasing from external

suppliers.

**JIT purchasing** is a method of purchasing that involves ordering materials only when customers place an

order.  When the goods are received they go straight into production.

**JIT production** is a production system that is driven by demand for the finished products (a 'pull' system),

whereby each component on a production line is produced only when needed for the next stage.

JIT is often used in conjunction with other continuous improvement methods.

**Requirements** **for successful operation of a JIT system**

• **High quality and reliability** – disruptions cause hold ups in the entire system and must be  avoided.

 The emphasis is on getting the work right first time:

 – Highly skilled and well trained staff should be used.

 – Machinery must be fully maintained.

 – Long­term links should be established with suppliers in order to

ensure a reliable and high quality service and to minimise any stoppages in production.

• **Elimination of non­value added activities** – for example, value is not added whilst storing the products

 and therefore inventory levels should be minimised.

• **Speed of throughput** – the speed of production should match the rate at which customers demand

  the product.  Production runs should be shorter with smaller stocks of finished goods.

• **Flexibility** a flexible production system and workforce is needed in order to be able to respond

  immediately to customers' orders.

• **Lower costs** – another objective of JIT is to reduce costs by:

– Raising quality and eliminating waste.

– Achieving faster throughput.

– Minimising inventory levels.

**JIT and service operations**

Although it originated with manufacturing systems, the JIT philosophy can also be applied to some service

operations.

• Whereas JIT in manufacturing seeks to eliminate inventories, JIT inservice operations will seek to eliminate

 internal or external queues of customers.

• Other concepts of JIT, such as eliminating wasteful motion and seeking ways of achieving continuous

 improvement are also applicable to services as much as to manufacturing activities.

**The impact on management accounting**

 The introduction of a JIT system will have a number of effects on the costing system and performance

 management.

• Allowances for waste, scrap and rework are moved to the ideal standard, rather than an achievable std

• Costs are only allowed to accumulate when the product is finished.

• The inevitable reduction in inventory levels will reduce the time taken to count inventory and clerical cost

• Minimal inventory makes it easier for a firm to switch to backflush accounting

• Traditional performance measures such as inventory turnover and individual incentives are replaced

 by more appropriate performance measures, such as:

– total head count productivity

– inventory days

– ideas generated and implemented

– customer complaints

– bottlenecks in production

– amount and effectiveness of staff training.

**Six Sigma**

• Six Sigma is a quality management programme that was pioneered by Motorola in the 1980s.

• The aim of the approach is to achieve a reduction in the number of faults that go beyond an accepted

 tolerance level.  It tends to be used for individual processes.

• The sigma stands for the standard deviation.

For reasons that need not be explained here, it can be demonstrated that, if the error rate lies

beyond the sixth sigma of probability there will be fewer than 3.4 defects in every one million units produced.

• This is the tolerance level set.  It is almost perfection since customers will have room to complain fewer than four times in a million.

**The five steps of the Six Sigma process (DMAIC)**

**Define customer requirements**

**Measure existing performance**

**Analyse the existing process**

**Improve the process**

**Control the process**

**How does Six Sigma improve the quality of performance?**

Six Sigma improves quality in a number of ways:

• An increased focus on the customer.

• The identification of business process improvements as key to success

• Management decision making is driven by data and facts, for examplethe number of customer complaints

 as a key performance measure.

The proactive involvement of management and effective leadership to co­ordinate the different Six Sigma

projects. t involves collaboration across functional and divisional boundaries focusing the whole organisation

on quality issues. The increased profile of quality issues and the increased knowledge of quality

management that comes from the use of different layers of trained experts.

**Target costing**

The target cost is an estimate of a product’s cost which is derived by subtracting a desired profit margin from a competitive market price.

**Steps in target costing:**

(1)Estimate a selling price for the product ­ consider how much customers will pay and how much

 competitors charge for similar products.

(2) Deduct the required profit.

(3) Produce a target cost figure.

(4) Reduce cost gap, i.e the difference between the current cost and the target cost.

**Techniques** **to reduce the cost gap**

Many of the techniques used to reduce the cost gap have a '**quality**' focus. These include:

• JIT

• TQM

• Kaizen

• ABC

• Value analysis: a systematic examination of the product which asks questions such as:

 – can another dependable supplier be found for less cost?

 – does it need all of its features?

**LEAN PRODUCTION** Is a philosophy of management based on cutting out waste and unnecessary activities including:

• Overproduction – produce more than customers have ordered.

• Inventory – holding or purchasing unnecessary inventory.

• Waiting – production delays/idle time when value is not added to the product.

• Defective units – production of a part that is scrapped or requires rework.

• Motion – actions of people/equipment that do not add value.

• Transportation – poor planning or factory layout results in unnecessary transportation

• Over processing – unnecessary steps that do not add value.

Lean production is closely related to quality practices such as Kaizen, JIT and TQM.

**THE FIVE S CONCEPT**

This is often associated with lean principles and has the aim of creating a workplace which is in order.

• Structurise – introduce order where possible, e.g. think about optimal locations for storage.

• Systemise – arrange and identify items for ease of use and approach tasks systematically.

• Sanitise – be tidy, avoid clutter.

• Standardise – be consistent in the approach taken.

• Selfdiscipline – sustain by motivation. Do the above daily.

**Quality in management information systems**

