Total Quality Management (TQM) is an approach that seeks to improve quality and performance which will meet or exceed customer expectations. This can be achieved by integrating all quality-related functions and processes throughout the company. TQM looks at the overall quality measures used by a company including [managing quality](http://management.about.com/cs/generalmanagement/a/mgttips03.htm) design and development, [quality control](http://marketing.about.com/od/marketingglossary/g/qualitycondef.htm) and maintenance, quality improvement, and quality assurance.

TQM takes into account all quality measures taken at all levels and involving all company employees.

**Origins Of TQM**

Total quality management has evolved from the quality assurance methods that were first developed around the time of the First World War. The war effort led to large scale manufacturing efforts that often produced poor quality.

To help correct this, quality inspectors were introduced on the production line to ensure that the level of failures due to quality was minimized.

After the First World War, [quality inspection](http://logistics.about.com/od/qualityinthesupplychain/a/Inbound-Quality-Inspections.htm) became more commonplace in manufacturing environments and this led to the introduction of Statistical Quality Control (SQC), a theory developed by Dr. W. Edwards Deming. This quality method provided a statistical method of quality based on sampling. Where it was not possible to inspect every item, a sample was tested for quality. The theory of SQC was based on the notion that a variation in the production process leads to variation in the end product. If the variation in the process could be removed this would lead to a higher level of quality in the end product.

After World War Two, the industrial manufacturers in Japan produced poor quality items. In a response to this, the Japanese Union of Scientists and Engineers invited Dr. Deming to train engineers in quality processes. By the 1950’s quality control was an integral part of Japanese manufacturing and was adopted by all levels of workers within an organization.

By the 1970’s the notion of total quality was being discussed. This was seen as company-wide quality control that involves all employees from top management to the workers, in quality control. In the next decade more non-Japanese companies were introducing quality management procedures that based on the results seen in Japan. The new wave of quality control became known as Total Quality Management, which was used to describe the many quality-focused strategies and techniques that became the center of focus for the quality movement.

**Principles of TQM**

TQM can be defined as the management of initiatives and procedures that are aimed at achieving the delivery of quality products and services. A number of key principles can be identified in defining TQM, including:

* Executive Management – Top management should act as the main driver for TQM and create an environment that ensures its success.
* Training – Employees should receive regular training on the methods and concepts of quality.
* Customer Focus – Improvements in quality should improve [customer satisfaction](http://logistics.about.com/od/forsmallbusinesses/a/Customer-Satisfaction.htm).
* Decision Making – Quality decisions should be made based on measurements.
* [Methodology](http://logistics.about.com/od/strategicsupplychain/a/Project-Methodology.htm) and Tools – Use of appropriate methodology and tools ensures that non-conformance incidents are identified, measured and responded to consistently.
* [Continuous Improvement](http://logistics.about.com/od/qualityinthesupplychain/a/Continuous-Improvement-Tools.htm) – Companies should continuously work towards improving manufacturing and quality procedures.
* [Company Culture](http://management.about.com/cs/generalmanagement/g/culture.htm) – The culture of the company should aim [at developing employees](http://management.about.com/od/managementcareers/fl/10-Powerful-Ways-to-Develop-Your-Employees.htm) ability to work together to improve quality.
* Employee Involvement – Employees should be encouraged to be pro-active in identifying and addressing quality related problems.

**The Cost Of TQM**

[Many companies](http://management.about.com/od/lifeworkbalance/a/Bestcos05.htm) believe that the costs of the introduction of TQM are far greater than the benefits it will produce. However research across a number of industries has costs involved in doing nothing, i.e. the direct and indirect costs of [quality](http://logistics.about.com/od/strategicsupplychain/a/Quality-Inspections-In-The-Supply-Chain.htm) problems, are far greater than the costs of implementing TQM.

The American quality expert, Phil Crosby, wrote that many companies chose to pay for the poor quality in what he referred to as the “Price of Nonconformance”. The costs are identified in the Prevention, Appraisal, Failure (PAF) Model.

Prevention costs are associated with the design, implementation and maintenance of the TQM system. They are planned and incurred before actual operation, and can include:

* Product Requirements – The setting specifications for incoming materials, processes, finished products/services.
* Quality Planning – Creation of plans for quality, reliability, operational, production and inspections.
* [Quality Assurance](http://operationstech.about.com/od/glossary/g/Quality-assurance.htm) – The creation and maintenance of the quality system.
* Training – The development, preparation and maintenance of processes.

[Appraisal costs](http://biztaxlaw.about.com/od/glossarya/g/appraiserdef.htm) are associated with the vendors and customers evaluation of purchased materials and services to ensure they are within specification. They can include:

* Verification – Inspection of incoming material against agreed upon specifications.
* Quality Audits – Check that the quality system is functioning correctly.
* [Vendor Evaluation](http://logistics.about.com/od/tacticalsupplychain/a/vendor_eval.htm) – Assessment and approval of vendors.

Failure costs can be split into those resulting from internal and external failure. Internal failure costs occur when results fail to reach quality standards and are detected before they are shipped to the customer. These can include:

* Waste – Unnecessary work or holding stocks as a result of errors, poor organization or communication.
* Scrap – Defective product or material that cannot be repaired, used or sold.
* Rework – Correction of defective material or errors.
* Failure Analysis – This is required to establish the causes of internal product failure.

External failure costs occur when the products or services fail to reach quality standards, but are not detected until after the customer receives the item. These can include:

* Repairs – Servicing of returned products or at the customer site.
* [Warranty Claims](http://logistics.about.com/od/tacticalsupplychain/a/Warranties.htm) – Items are replaced or services re-performed under warranty.
* Complaints – All work and costs associated with dealing with customer’s complaints.
* [Returns](http://logistics.about.com/od/greensupplychain/a/revese_logistics.htm) – Transportation, investigation and handling of returned items.