

Total quality management techniques



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Quality Management Techniques | Dharmendra Choudhary (104) | | Table of

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Quality management Quality management can be considered to have four main components: quality planning, quality control, quality assurance and quality improvement. Quality management is focused not only on product/service quality, but also the means to achieve it. Quality management therefore uses quality assurance and control of processes as well as products to achieve more consistent quality. Quality Management Principles:- 1. A Customer Focused Organization 2.

Leadership 3. Involvement of People 4. Process Approach 5. Systematic Approach to Management 6. Continual Improvement 7.

Factual Approach to Decision-Making 8. Mutually Beneficial Supplier Relationships Factual Approach to Decision-Making:- An organizational strategy and the accompanying techniques that result in the delivery of high-quality products or services to customers. TQM is critical to achieve world-class competitiveness:- * Manufacturing is a primary area * U. S. automakers have greatly improved the quality of their cars in recent years * The Japanese have continuously improved quality and thus still have the lead Total Quality Management Decisions (TQM) Many successful TQM techniques applied to manufacturing * MNCs use TQM techniques * Tailor output to customer needs * Require their suppliers use same approach * Concurrent engineering/interfunctional teams * Designers, engineers, production

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specialists, and customers work together to develop new products *

Empowerment Rewards and Recognition * Pay and benefit increases, merit pay, and discretionary bonuses * Pay-for-skills and knowledge plans *

Plaques, and public recognition * Success of rewards and recognition varies by country * U.

S. workers may value individual recognition * Japanese do not like to be singled out for personal praise Example:- Quality Management Techniques

----- Kaizen The Japanese word “ KAIZEN” means improvement, improvements without spending much money, involving everyone from managers to workers, and using much common sense. The Japanese way encourages small improvements day after day, continuously. The key aspect of KAIZEN is that it is an on-going, never-ending improvement process.

It's a soft and gradual method opposed to more usual western habits to scrap everything and start with new. Implementation The Toyota Production System is known for kaizen, where all line personnel are expected to stop their moving production line in case of any abnormality and, along with their supervisor, suggest an improvement to resolve the abnormality which may initiate a kaizen. The PDCA cycles The cycle of kaizen activity can be defined as: Standardize an operation * Measure the standardized operation (find cycle time and amount of in-process inventory) * Gauge measurements against requirements * Innovate to meet requirements and increase productivity * Standardize the new, improved operations * Continue cycle ad infinitum The five main elements of kaizen| | * Teamwork * Personal discipline * Improved morale * Quality circles * Suggestions for improvement

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Criticisms Some critics of kaizen claim that the cost-cutting measures come at the expense of fair labor practices and quality products. Examples include:

- * Accusations of death by overwork at Toyota that included unpaid “ so-called voluntary quality control meetings held after regular work hours” [11]
- * Suppliers refusing to accept orders from Toyota or its affiliates due to successive price cuts[12]
- * A four-year-old memo from Japanese factory workers warning that safety was being put at risk by aggressive cost-cutting[13]
- * In healthcare, direct-care providers such as nurses have gone on strike over these streamlining procedures, because “ procedure times can’t always be standardized”. Hospitals have used these streamlining procedures as an excuse to cut patient-care staff. [14]
- * Although Kaizen is supposed to involve input from all employees, critics claim that in reality front-line workers are not consulted.

[15] Also see above, re: memo from Japanese factory workers.

----- ISO 9000 ISO 9000 is a written set of rules published by an international standards writing body. The rules define practices that are universally recognized and accepted for assuring that organizations consistently understand and meet the needs of their customers. ISO 9000 is also highly generic. Its principles can be applied to any organization providing any product or service anywhere in the world.

Since meeting customer needs is one of the (many) definitions of quality, ISO 9000 is often called a quality system or a quality management system. Goal and Scope The Standard states its goal in two blunt words: customer satisfaction. The quality management system (QMS) helps to achieve

customer satisfaction by: •Applying the system. Actually using it. Putting it at the heart of our organization.

- Continually improving the system. The QMS is never done. After all, customer requirements do not stand still—they evolve and grow tougher. So it is important to improve continually in order to survive.

- Prevention of nonconformity. Prevention is the key term here: prevention, rather than detection. Quality management has long since evolved away from the old “ inspect quality in” approach. Prevention is cheaper, more effective, and more protective of the customer.

Detection is also a different mindset. It requires a very high degree of process orientation, upstream thinking, and relentless analysis. Advantages and Benefits

- Improves customer focus and process orientation within the organization.
- Facilitates continuous improvement.
- Creates consistency throughout the organization.

- Strengthens relationships between your organization and its suppliers and customers, and among suppliers/customers within your organization.

- Provides confidence to customers in the capability of your organization to meet quality commitments.
- Improves management decision making.

- Institutionalizes training in methods and procedures essential to quality.

Reduces dependence upon individuals. •Adds value.

Some 250, 000 registrations in, the evidence is clear. Facilities with advanced quality cost tracking controls almost always find that their documented quality system adds value. -----

Business process reengineering Business process reengineering (BPR) began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors. A key stimulus for reengineering has been the continuing development and deployment of sophisticated information systems and networks.

Leading organizations are becoming bolder in using this technology to support innovative business processes, rather than refining current ways of doing work. Business Process Reengineering (BPR) is basically the fundamental rethinking and radical re-design, made to an organization existing resources. It is more than just business improvising. It is an approach for redesigning the way work is done to better support the organization's mission and reduce costs. Reengineering starts with a high-level assessment of the organization's mission, strategic goals, and customer needs.

Within the framework of this basic assessment of mission and goals, reengineering focuses on the organization's business processes—the steps and procedures that govern how resources are used to create products and services that meet the needs of particular customers or markets. As a structured ordering of work steps across time and place, a business process can be decomposed into specific activities, measured, modeled, and improved. Business Process Reengineering (BPR) is basically the fundamental rethinking and radical re-design, made to an organizations existing resources. It is more than just business improvising. It is an approach for redesigning the way work is done to better support the organization's

mission and reduce costs. Reengineering starts with a high-level assessment of the organization's mission, strategic goals, and customer needs. Basic questions are asked, such as “ Does our mission need to be redefined? Are our strategic goals aligned with our mission? Who are our customers? An organization may find that it is operating on questionable assumptions, particularly in terms of the wants and needs of its customers.

Only after the organization rethinks what it should be doing, does it go on to decide how best to do it. ----- Kansei

Engineering Procedure In Japanese publications, different types of Kansei Engineering are identified and applied in various contexts. Schutte examined different types of Kansei Engineering and developed a general model covering the contents of Kansei Engineering. Choice of Domain: ‘ Domain’ in this context describes the overall idea behind an assembly of products, i.

e. the product type in general. Choosing the domain includes the definition of the intended target group and user type, market-niche and type, and group of the product in question. Choosing and defining the domain is carried out including existing products, concepts and as yet unknown design solution. From this, a domain description is formulated serving as basis for further evaluation.

Schutte describes the processes necessary in detail in a couple of publications. Span the Semantic Space: The expression ‘ Semantic Space’ was addressed for the first time by Osgood et al.. He posed that every artifact can be described in a certain vector space defined by semantic

expressions (words). This is done by collecting a large number of words that describe the domain.

Suitable sources are pertinent literature, commercials, manuals, specification list, experts etc. The number of the words gathered typically varies, depending on the product between 100 and 1000 words. In a second step the words are grouped using manual (e. g.

Affinity diagram, compare: Bergman and Klefsjo, 1994) or mathematical methods (e. g. factor and/or cluster analysis, compare: Ishihara et al. , 1998). Finally a few representing words are selected from this spanning the Semantic Space. These words are called Kansei words or Kansei Engineering words.

Span the Space of Properties: The next step is to span the Space of Product Properties, which is similar to the Semantic Space. The Space of Product Properties collects products representing the domain, identifies key features and selects product properties for further evaluation. The collection of products representing the domain is done from different sources such as existing products, customer suggestions, possible technical solutions and design concepts etc. The key features are found using specification lists for the products in question.

To select properties for further evaluation, a Pareto-diagram (compare Bergman and Klefsjo, 1994) can assist the decision between important and less important features. Synthesis In the synthesis step, the Semantic Space and the Space of Properties are linked together, as displayed in Figure 3.

Compared to other methods in Affective Engineering, Kansei Engineering is

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the only method that can establish and quantify connections between abstract feelings and technical specifications

----- Quality Function Deployment (QFD) Quality Function Deployment (QFD) was developed to bring this personal interface to modern manufacturing and business. In today's industrial society, where the growing distance between producers and users is a concern, QFD links the needs of the customer (end user) with design, development, engineering, manufacturing, and service functions. QFD is: 1.

Understanding Customer Requirements 2. Quality Systems Thinking + Psychology + Knowledge/Epistemology 3. Maximizing Positive Quality That Adds Value 4. Comprehensive Quality System for Customer Satisfaction 5. Strategy to Stay Ahead of The Game QFD is a comprehensive quality system that systematically links the needs of the customer with various business functions and organizational processes, such as marketing, design, quality, production, manufacturing, sales, etc. , aligning the entire company toward achieving a common goal.