

## Quality Measurement

## Total Quality Management

### Quality Measurement

Given the importance of quality to almost all businesses, it is important that quality is measured. There are many ways to do this.

Businesses can measure quality aspects such as:

- Failure or reject rates
- Level of product returns
- Customer complaints
- Customer satisfaction – usually measured by a survey
- Customer loyalty – evident from repeat purchases, or renewal rates

However, it is important to remember that:

- Quality is subjective, it is a matter of personal opinion and what constitutes an acceptable level of quality will vary from one individual to another
- Not all aspects of quality are tangible – for example the degree of assurance given by a firm's name or reputation can be very important even though it is hard to measure.
- Quality is always evolving because of things like improved technology, better materials, new manufacturing techniques and fresh competitors. No firm can afford to stand still as far as quality is concerned
- Whilst controlling quality has benefits to the firm, it can also be costly to do, so it is important that the benefits outweigh the costs in the long term

We don't measure a recipe; we measure each of its ingredients. And the ingredients will vary depending on the recipe and the tastes of the people who will be fed by it. Some ingredients need to be measured because they matter, while others don't (like lettuce in a salad, broth in a risotto, or decorations on a cake). A recipe is a concept and it's only the ingredients that can be measured meaningfully.

Because quality is a concept, and too vague to measure directly, to measure quality meaningfully, we have to unpack it first. Inspired by Douglas Hubbard's clarification chain, from his brilliant book "How To Measure Anything" is this basic guideline I use to make vague concepts measurable:

- Unpack the multi-focus concept into singular-focus attributes
- Reword the intangible concept into observable language

Quality is both intangible and multi-focus. We can't meaningfully measure it until we make it unpack its attributes and make each attribute observable. Here's how...

### **STEP 1: What Entity do you want to Measure the Quality of?**

Quality relates to so many things. Fundamentally, quality is about how good something is. And even more specifically, it's about how good something is relative to how good it should be.

So it can be useful to measure the quality of all kinds of things we work on, like these:

- Data quality e.g. financial data or performance data or HR data
- Product quality e.g. a vacuum cleaner or gourmet chocolate
- Service quality (or customer experience) e.g. of a train trip or legal advice
- Software quality e.g. a meditation app or KPI dashboard app
- Process quality e.g. technical support process or delivery process or manufacturing process

Our first step, then, is to clearly identify the entity we want to measure the quality of. What's yours?

### **STEP 2: Who Defines the Quality of that Entity?**

And for the quality of your entity, you need to let the experts define the quality attributes. And often the experts are the end users, for example:

Data quality might best be defined by data scientists or others who both analyze data and understand the structure of data

- Software quality might best be defined by the users of the software
- Service quality is best defined by the customers that directly experience that service
- Quality of cement is best defined customer and contractors

### **STEP 3: What's their Overall Assessment of Quality?**

Don't add up attributes to create an overall. This a composite measure or index and it's a very unreliable and inaccurate way to measure something. Especially when you can actually measure it directly. And often, we're too quick to assume we can't measure something directly, when in fact we can. Here are some examples:

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- Overall Perfect Data Rate: using samples of data records, take the percentage of all data items that are either missing, incorrect, incomplete or irrelevant
- Overall User Perception of Software Quality: the average rating provided by users, on a scale of 1 to 10, of the degree to which the software meets their known requirements
- Overall Customer Perception of Quality: the average rating that current customers give, on a scale of 1 to 10, of how satisfied they are with overall service quality

**STEP 4: Which Specific Attributes of Quality Matter most to them now?**

**STEP 5: Measure the Most Important 3 Attributes.**

### **Factors to be Consider while Measuring Quality**

- Quality is specification driven – does it meet the set performance requirements
- Quality is measured at start of life – percent passing specification acceptance
- Quality effectiveness is observable by number of rejects from customers

### **Significance of Quality Measurement**

Measures inform us about

- How system is performing.
- Measures help identify weaknesses, prioritize opportunities, and can be used to identify what works and doesn't work to drive improvement.
- Measures can also prevent the overuse, underuse, and misuse of services and can identify disparities in care delivery and outcomes.
- Measures are used for quality improvement, benchmarking, and accountability.

### **Inspection Planning**

Inspection is a crucial part of ensuring quality, whereby a physical product is visually examined and measured for any defects such as cracks, blemishes, or irregularities. This essential part of the

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manufacturing process is also labor intensive and time consuming, not to mention runs the unavoidable risks of human error and eventual fatigue.

- Incoming goods / production monitoring/ final inspection:
- ISO sampling plans, 100 % inspection
- Inspection characteristics: qualitative, quantitative, calculating, classifying modules, Family / variant inspection planning, inspection scheme
- Batch tracing, traceability

### **• Customer Satisfaction**

#### **Definition**

Customer satisfaction is defined as a measurement that determines how happy customers are with a company's products, services, and capabilities. Customer satisfaction information, including surveys and ratings, can help a company determine how to best improve or changes its products and services.

- The most successful TQM programs begin by defining quality from the customer's perspective
- Quality means meeting or exceeding the customer's expectations

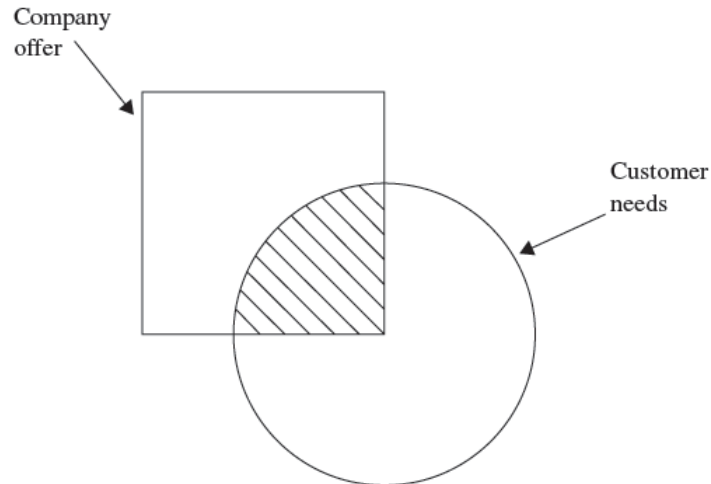
#### **Tebouls Model**

Customer service is the set of activities an organization uses to win and retain customer's satisfaction. It can be provided before, during, or after the sale of the product or exist on its own.

- There is always comparison going on between company's offering & customer demand.
- You can't predict what customer required because it depends upon the feelings, customer satisfaction etc.
- The red area shows the common company's offerings and customer's needs.
- Any product or service falling in this zone will be a surefire recipe for organization's success.
- Finally, we conclude that customer satisfaction is not simple formula to understand or measure.

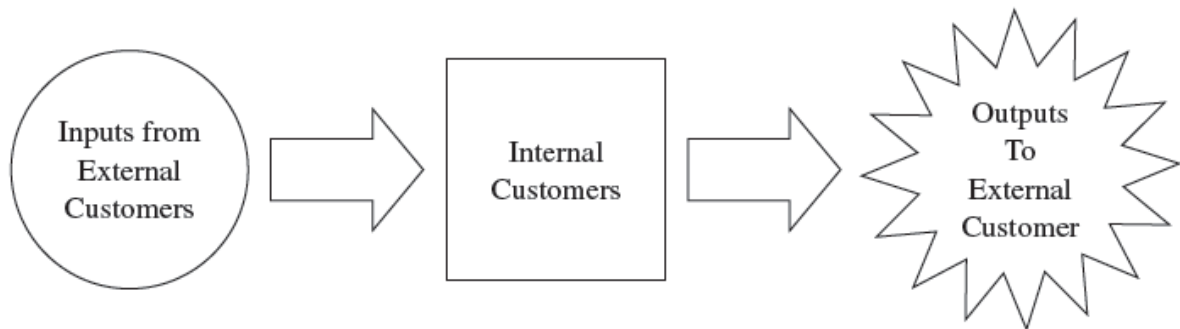
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### Customer Satisfaction Model

## Customer/Supplier Chain



## Who is the Customer?

- **An external customer**
  - one who uses the product or service, the one who purchases the product or service, or the one who influences the sale of the product or service
  - current, prospective, and lost
- **An internal customer**
  - Each worker's goal is to make sure that the quality meets the expectations of the next person. When that happens throughout the manufacturing, sales, and distribution chain, the satisfaction of the external customer should be assured

**Customer Perception of Quality**

- There is no acceptable quality level because the customer's needs, values, and expectations are constantly changing and becoming more demanding
- Different Surveys on end user perceptions of important factors that influenced purchases showed the following ranking
  1. Performance
  2. Features
  3. Service
  4. Warranty
  5. Price
  6. Reputation

**Customer Feedback**

- Customer feedback must be continually solicited and monitored
- Feedback enables the organization to:
  - Discover customer dissatisfaction.
  - Discover relative priorities of quality.
  - Compare performance with the competition.
  - Identify customers' needs.
  - Determine opportunities for improvement

**Tools for Listening to Voice of Customer**

- Comment cards,
- Questionnaires,
- Focus groups,
- Toll-free telephone lines,
- Customer visits, report cards,
- The Internet,
- Employee feedback,

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- Mass customization and

## Service Quality

- Customer service is the set of activities an organization uses to win and retain customers' satisfaction.
- It can be provided before, during, or after the sale of the product or exist on its own. Elements of customer service are:
  - *Organization:*
  - *Customer Care*
  - *Communication*
  - *Front-line people*
  - *Leadership*