Management of Strategic Operations

Week 7: Identifying a strategy for improvement

Defining and maintaining standards

Textbook reading (Slack, Brandon-Jones, & Johnston: Ch. 17, pp. 534-555)

Quality is the ultimate measure of how well the products and services of a company can meet, or better still *exceed*, the market's requirements and customer expectations. There was a time when quality was just about achieving the lowest possible rate of defects and could be measured as such by production managers. In today's global economy, defective products and services generally don't even make it to the marketplace. Quality is measured by customers and expressed in terms of the reputation the company can build for excellence in reliability, speed, innovation, durability, aesthetics, safety, and efficiency. When assessing services, customers measure quality characteristics such as accessibility, responsiveness, timeliness, and aesthetics. You will find in your reading that there are various ways to look at quality. Companies aim to do more than just meet requirements; they seek to *delight* customers with products and services that are beyond their expectations.

What is difficult about ensuring quality is that part of the perception is held by the customer. As individuals, we will all have differing viewpoints as to what constitutes quality in a product. The differences result in gaps between what the organisation may perceive as quality and what the customer perceives. These gaps, as outlined in your reading, must be diagnosed and reconciled in order to maintain the perception of quality. This involves careful coordination amongst the product development, operations, and marketing departments.

As you will see, ensuring quality requires the organisation to identify the quality characteristics of the product/service, such as functionality, appearance, reliability, and recovery. Characteristics such as these speak to the various elements of the product, such as how well the product performs its basic tasks, if the product is aesthetically pleasing, if performance is consistent, and if problems can be easily fixed. The organisation must consider all of these characteristics individually, but also collectively to understand the relationship between them and how this affects the overall performance of the product.

Once the characteristics have been identified it is necessary to develop a method of measuring each of them, so that standards can be set. These characteristics can be measured using two types of quality characteristics: variable measures and attribute

measures. Variable measures are those types of measurement where the variable is measured based on numerical continuous type data, and uses some sort of scale, such as time, length, speed, etc. Attributes are discrete type measures and take a categorical form and are answered by choosing between two options, such as yes or no, right or wrong, defective or non-defective, etc. Table 17.2 in your reading helps to explain these elements. By measuring the characteristics, the organisation can develop standards by which to evaluate performance. Standards set benchmarks or ranges of acceptable performance for each of the characteristics. Such standards should be set with both the constraints of the operation and the expectations of the customer in mind. An airline may want to have all flights leave and arrive on time, but conditions such as weather and security prevention may prevent this from happening. Customers are aware of this and are generally willing to accept delays that are out of the airline's control. Delays such as these will not likely affect the perception of quality a customer has towards a particular airline. However, delays caused directly by the airline must be kept to a minimum, as customers are likely to be less forgiving when these occur. The airline must set its standards to incorporate delays that may occur from uncontrollable factors, while also pushing the operations to minimise other types of delays.

Once standards have been determined the organisation then evaluates the product to ensure that quality is acceptable. How to control the quality of a product largely depends on the nature of the product itself. In a manufacturing process, it may be necessary to check the raw materials at the beginning of the operation and check the product at various points in its production. This may be accomplished by examining a sample of the raw materials and single items from each batch, rather than checking every piece or item. Such checks may be conducted by specialised equipment or employees. Other services, such as a surgical operation, may have greatly different approaches to control. Here, the patient is examined thoroughly prior to the procedure and is continuously monitored throughout the operation. Random checks of the patient during the procedure would not be very reassuring or safe! Your reading explores the different levels and types of control.

Performance measurement

Textbook reading (Slack, Brandon-Jones, & Johnston: Ch. 20, pp. 645-649)

Quality is essential, as is the need to set standards by which to evaluate and control the quality of a product. Even when the operation has matured to a degree where it has reached the desired level of quality, there is still room for improvement. In fact, operations managers should always be seeking out areas that can be improved. Such an approach can help to reduce costs, increase customer satisfaction, or enable the operation to better meet its performance objectives. But to ensure that improvement is

attained, it is first necessary to understand the operation's current level of performance. Quantitative measures of performance are needed to objectively evaluate the current state of an operation and to determine if the initiatives taken for improvement have had any effect.

You will see in your reading that performance measurement is generally based around the five performance objectives that were introduced early in the module. These five broad objectives serve as the starting point for improvement and can be 'broken down' or narrowed into more specific measures. For example, an operation may have cost reduction as its most significant performance objective. The objective can be narrowed down to specifically identify measures that need to be evaluated, such as labour costs. As we have seen earlier, an operation focuses on selected objectives based on market requirements and/or operational resources. It is these selected objectives and their specific measures that become the most important indicators of performance. These key performance indicators (KPIs) should be relevant measures of performance that directly affect the objectives and also correlate to the overall strategy of the organisation.

In your reading you will examine the use of the balanced scorecard as a framework for measuring performance. This important approach has been utilised by organisations to align operational activities with the overall strategy and vision of the firm. Balanced scorecard derives it name because it assesses the financial performance measures with nontraditional metrics such as customer satisfaction, innovation, and internal processes. Recognising these factors as the drivers of financial performance broadens the focus as to how decisions will affect the organisation as a whole. More importantly, it requires managers to evaluate performance against the strategic objectives of the firm. As a management system, balanced scorecard provides information and feedback to the business processes within the organisation. Such feedback can be used to compare efforts to results, enabling the organisation to improve its performance. This approach is very popular and its use is widespread as a framework for performance measurement.

Another tool for diagnosing performance is the Supply Chain Operations Reference (SCOR) model. Developed by the Supply Chain Council, this model enables understanding of the processes and operations of an organisation while also identifying the elements that are vital to customer satisfaction. While there are various theories regarding the SCOR model, there are three important factors that have emerged: process modelling, performance measurement, and best practices sharing. These three factors provide a framework which focus on five areas of the supply chain: plan, source, make, deliver, and return. The SCOR model for performance measurement is similar to the balanced scorecard as it is a provider of information, evaluation, and feedback.

While the balanced scorecard is considered a more useful tool, SCOR does enable information to be broken down at every level of the operation, which helps in the assessment of performance. By going into the various levels, an organisation has greater knowledge and understanding of its supply chain. Problems can then be identified and improvements can be made at each level, resulting in a better product.

http://www.supply-chain.org
(This Web link directs you to the Supply Chain Council Web site. You can explore the SCOR model further and learn how it is used in performance measurement.)

Priorities for improvement
Textbook reading (Slack, Brandon-Jones, & Johnston: Ch. 20, pp. 652-657)

When we talk about improving performance, it would be optimal if organisations were able to improve all aspects of the operation. An ideal operation would be one that had minimal costs, produced a product as quickly as possible, and provided dependability and flexibility, while also delivering the highest possible level of quality. This sounds great; however, it may simply not be possible. Flexibility may have to be sacrificed for low costs and quick production, while speed may have to be foregone if an operation is going to be flexible and seek optimal quality. It is essential that the organisation work out what the priorities are so that the improvement effort can be focused on the areas where it matters most in strategic terms. The five generic performance objectives—quality, speed, dependability, flexibility, and cost—still offer a good starting point. From these, the key decision areas can be worked out and mapped onto an importance-performance matrix. This is a simple but effective way of considering how important any of these elements are to potential customers, and then comparing that with just where performance stands in relation to that of competitors. Obviously, on the one hand there is little point in trying to improve in areas that don't impress the customers that much, and on the other hand we don't want to waste a lot of unnecessary effort on improving in an area where we already lead the field. We should concentrate on those areas that are important to customers but where we do not perform as well as our competitors.

A simple importance-performance matrix uses nine grades to judge both the standard of performance against that of the competition and the importance for customers of the factor that is under consideration. This yields a checkerboard which is then divided into four zones:

1. A zone where performance outstrips competitors, but in an area that is not very important to customers. Obviously there is not much point in wasting a lot of energy on trying to improve in this area.

2. A zone where performance is evaluated as average to excellent and customer perceptions of the factor vary quite widely, from thinking it is not very significant to quite or even very important. If performance falls into this zone it can be judged appropriate to the requirements of the market.

3. A zone where performance varies from below average to moderately good in an area that a substantial number of customers see as fairly to very important. This is clearly an area where an effort to improve could reap dividends in terms of winning customers.

4. A zone where performance is average or below for the industry but in an area that customers count as moderately to extremely important. Performance that falls into this zone is obviously in urgent need of improvement.

Figure 20.9 in your reading illustrates how the matrix is constructed.

Improvement strategy

Textbook reading (Slack, Brandon-Jones, & Johnston: Ch. 18, pp. 578-599)

Have you ever tried to improve a certain aspect of your life? Maybe you wanted to be more organised or have better control over your finances. How did you approach one of your improvement objectives? Did you attempt to make a radical or far reaching change? Or did you start with small changes in only a few areas, and subsequently you gradually worked at improving other aspects of the objectives? Organisations that are attempting to make improvements are faced with the same type of questions as they must figure out a strategy to follow. Two general strategies that have emerged are breakthrough improvement and continuous improvement.

A breakthrough improvement strategy is marked with significant levels of change, often dramatic and swift, that are intended to totally alter the operation. Under such a strategy, the improvements experienced are also dramatic and swift, which is a major benefit of breakthrough improvement. The organisation experiences the desired result in a relatively short amount of time. However, such a strategy can also place some significant strain on the organisation by requiring employees to quickly learn new procedures, utilising a high amount of funding, and affecting the performance of other operations. As Figure 18.2 indicates, the actual improvement experienced under such a strategy often lags the planned improvements. A continuous improvement strategy is the opposite of the breakthrough strategy, as it seeks improvement over a longer period

of time through incremental change. This is not to say that the level of improvement is small, but rather the actions taken by the organisation are incremental in nature. The goal is to experience an increase of improvement continuously and over a long period of time, rather than large jumps in improvement that may level off.

You have already seen how the areas of focus for improvement need to be prioritised to avoid wasting effort on resources that are already performing up to expectations and to concentrate on the areas that are in urgent need of attention. Carrying out improvements in a rational sequence is another important consideration. Some areas may depend on others to such an extent that the foundations must be tackled first before improving upper layers that rest on those foundations. This idea is described in the 'sandcone theory', which suggests that quality provides the essential foundation and should be dealt with first. Improvements in the layers of dependability, speed, flexibility, and cost can only be built up in that order and after the foundations of quality have been made secure.

The textbook authors examine two popular improvement cycle models to demonstrate how a continuous improvement strategy can be accomplished. The PDCA cycle (plan, do, check, and act) and the DMAIC cycle (define, measure, analyse, improve, and control) are briefly introduced so that you have a general understanding of how they are utilised in a continuous improvement plan. The DMAIC cycle, which is part of the Six Sigma approach, is illustrated in the short case 'Six Sigma at Xchanging' (page 595).

Business process reengineering (BPR) is also introduced by the authors as it is a popular approach when following a breakthrough strategy. It has its roots in arguments put forward by Michael Hammer in the early 1990s to the effect that businesses should eliminate the non-value adding work that exists within the organisation. The premise behind this idea is that any work that does not create value for the customer is unnecessary and should be eliminated. The key elements of BPR are the following: aiming for radical improvements through process redesign; cross-functional reorganisation to meet customers' needs; getting internal customers involved in the processes supplying them; and merging control and action wherever possible.

Techniques for improving operations

Textbook reading (Slack, Brandon-Jones, & Johnston: Ch. 18, pp. 598-603)

Flow charts are used to show the movement of information or the steps necessary to accomplish a task. Process flowcharting can give the organisation more than just an understanding of 'how we do things'. When designed correctly, a graphic diagram

should help individuals visualise problems, while identifying actual and ideal paths for the process. When the organisation can see how the whole process works, it is easier to recognise the critical points and areas for improvement. Individuals can view how the different steps are related within the process as well as how steps are related to other processes of the organisation. Gaining a clear understanding of how the processes in a business work is an essential step towards improvement, and flow charts provide graphics that greatly assist in understanding process flows and relationships.

Pareto charts and the methods for analysing them are derived from the findings of Vilfredo Pareto, an Italian economist and philosopher. In the early 1900s he discovered that around 80% of the income in Italy was controlled by about 20% of the people. This '80-20' rule has been applied to many different areas, including quality control. Roughly speaking it can be argued that 80% of problems with the quality of a product or service can be traced to around 20% of the processes involved in its creation or delivery. A Pareto chart arranges data so that the 20% crucial factors that are causing 80% of the issues can be identified. By focusing efforts on the 20% causes of most of the problems, the organisation will realise savings simply by not attempting to correct or to solve every problem when that may not be cost effective.

It should be noted that Pareto analysis is most commonly used to solve a very complex problem that has several causes. If a company was experiencing several problems with several causes, it could solve them on a problem-by-problem basis. However, this would probably not be the best use of the organisation's time and resources. The most logical approach would be to resolve the issues that were causing the most problems. While Pareto analysis does not help to solve every problem, it does allow organisations to make educated decisions towards improvement.

The cause of a problem cannot always be identified with a computer or statistical package. The individuals in the process need to be involved. Why-why analysis is a method that is centred on the brainstorming efforts of a team and takes account of the opinions of staff who normally work with the process. In attempting to solve a problem, the analysis provides a visual and structured tool that will assist a group to recognise all possible reasons for the problem. By creating linkages between results (desired or undesired) and the possible causes, suggestions are offered regarding occurrence and the likely effects of that cause.