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Abstract:

**Implementing TQM in a
Small Business**

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ABSTRACT:

The definition of a small business varies depending on the source. The dividing line between small and large is between 500 and 1500 people. It is important for small businesses to implement TQM because of strong competition and pressure from their customers. Most small businesses still use inspection methods to find defects instead of TQM methods to eliminate defects. Small businesses feel they are at a disadvantage in implementing TQM due to lack of resources. Many small businesses that have implemented TQM successfully feel that the small number of employees is a big advantage. This is due to quick communications and fewer people to train. The key elements to implement TQM in a small company are: Management commitment, identifying customer needs, process control and continuous improvement. Small businesses in the implementation process of TQM should seek the assistance of large business customers. Large businesses should not impose their quality systems on to the small company, but should instead work with the small business to implement a system that meets their needs and capabilities.

INTRODUCTION:

Over the past few years the term Total Quality Management has been heard frequently in the United States. Many names and images come to mind when the term is mentioned. Some may think of Japanese products, Demming, or the Malcolm Baldrige award. As stated in the Baylor Business Review" images of the quality programs of industry giants like General Motors, Toyota, AT&T and Motorola quickly come to mind." [4,p.25]. These images seem large and grand and may give the impression that Total Quality Management can only be undertaken by corporations with large amounts of resources such as personnel, money and time. Is it a true assumption that smaller businesses cannot properly implement TQM due to fewer resources? Do small businesses need to implement TQM and if so can they make it effective?

If small companies do not have the resources necessary to fully implement TQM, it would then be important to define the key elements or tools of TQM which would derive the most benefit. These could then be adapted for use by a small business. Small businesses could focus on implementing final inspection to detect errors, so products could be reworked or scrapped, or they could follow the lead of large companies and implement process control and continuous improvement. There are various ways to assure the quality of products or material. This paper will investigate the distinctions of small companies regarding TQM. The purpose is to determine the key elements that are the most beneficial to a small business, and how they can most effectively be used, along with the

most efficient ways large customers of small businesses can support their quality efforts.

DISCUSSION:

Small Businesses

Since this paper is focusing on small businesses, it is necessary to define what is considered a small business. According to Bemowski, the definition for a small business is not very specific and it varies according to whom you ask. According to an article in Quality Progress, two agencies that attempt to define it are the U.S. Small Business Administration (SBA) and NASA. Even within the SBA, the number of employees varies depending on the industrial classification. In general the SBA defines small businesses based on the number of employees or annual revenues. The number of employees can vary from 100 to 1500. Nasa's criteria is much simpler. They define a small business as an organization with no more than 500 employees. [6,p.26]. In a study by Golhar, Stamm and Smith, they also used the number of 500 as the point to differentiate a small from large business. [5,p.44]. In addition, it also should be noted that some refer to small manufacturing businesses as "job shops." These types of companies usually provide components or subassemblies to large Original Equipment Manufacturer's (OEM). [1,p.20].

Besides the definition of a small business it is interesting to know how prevalent they are. There is much in the literature that suggests that most businesses are small businesses and that

the majority of people are employed by small business. In the Baylor business review, Gray and Seaman state that the small firm makes up the majority of enterprises in the United States. Also that small businesses in total make up a significant portion of the labor force and U.S. business assets. [4,p.25]. Bemowski in Quality Progress presents very specific data on how much of the U.S. economy is made up of small businesses. According to the article, 58% of the work force in the U.S. is employed at more than 20 million small businesses. [6,p.23].

As mentioned previously when TQM is discussed, the type of companies that come to mind are large ones. Since there are so many small businesses, it may be surprising that they have not had a larger impact on the development of TQM systems, and have not had more exposure in the literature. Grey and Seaman give two reasons for this apparent discrepancy. First they believe that the small business has far fewer resources and a more focused geographical area to market it's products. Secondly there are not the alliances between companies that are typically seen with large companies. The result of this is that small companies are less likely to influence traditional TQM systems due to the lack of power. Additionally, they may be ineffective at implementing TQM internally. [4,pp.25-26].

Importance of TQM in a small business

In an article in Electronic Business, quoting Ray Marlow of Marlow Industries, Baatz states, " Marlow believes total quality

management is a matter of corporate survival. 'U.S. companies must respond or die.'" [2,p.50]. Although Marlow industries is a small business, he is referring to all companies. It appears the question is not how can small companies afford TQM, but how can they not afford TQM. This belief is echoed by many. Steve Wernick in Quality believes that " TQM was, in fact, a way to stay in business and prosper." [13,p.15]. This concern of staying in business could possibly be attributed to the great strides Japan and other international companies have made in improving quality. There is now much more competition in the international arena that is utilizing TQM to produce high quality products. The European mark is using the ISO 9000 quality systems guidelines to improve their quality systems. Also, many companies are being affected by the extended recession in the U.S. A 1992 Gallup survey of more than 600 small businesses indicated that the recession was their number one survival challenge. [6 ,p.23]

There is an additional reason that small businesses may need to implement TQM, and that is it may be the requirement of their customers. Grey and Seaman state, ". . . that a quality hierarchy exists wherein large corporations impose their views of the quality process upon their small vendors." [4,p.26].

Disadvantages to being a small company

Elements of TQM such as SPC have been around for decades, yet small companies still typically rely on inspections methods. [4,p.26]. What are the road blocks that are causing small companies not to implement TQM in higher numbers? The current

literature suggests many reasons, the most influential is that of lack of resources. Bemowski in Quality Progress explains that larger companies tend to have additional resources that can be drawn upon to focus on implementing TQM. Smaller companies are usually more streamlined, and may have to give up some important activity to implement TQM. [6,p.24].

In smaller companies, workers tend to be more multifunctional, making it difficult for them to put their full attention into one large project such as implementing TQM. At Globe Metallurgical, a small business that manufactures ferroalloys, each employee wears several hats. [7,p.29].

Golhar, Stamm and Smith, performed a study regarding the implementation of Just-In-Time (JIT) techniques in a small business. One of the prerequisites for JIT is Total Quality Control. They describe several differences with small firms that may make the implementation of JIT difficult. Small companies may not have enough clout with their suppliers, they have limited resources, and top management may not have enough experience. [5,p.44].

Advantages to being a small company

It may not be readily apparent, but there are several advantages to being a small company when it comes to implementing Total Quality Management techniques. Some of these advantages are related to some of the disadvantages described previously. Small businesses, as described previously, tend to have a minimum number

of workers. This is perceived as a lack of resources and therefore a disadvantage. On the contrary, others have described the small number of employees as an advantage. Many of these sources are small companies that have successfully implemented TQM in their organizations. These companies believe that the advantages far outweigh the disadvantages.

One of the key elements in implementing a TQM program in a small company, which will be discussed in more detail later, is that of top management support. The CEO of Marlow Industries, who won a coveted Baldrige site visit, believes it is easier for small businesses because he can be more visible to all employees in the promotion of the TQM system. [7,p.30]. Marlow also explained how if managers, while filling out the Baldrige application, identified a weakness, they could then fix it themselves. [2,p.50].

Bemowski lists several advantages that result of having fewer personnel in a small company. There is improved teamwork because everyone knows each other. The company leader can quickly spread their message that TQM is key for all employees. Since there are fewer employees, less money is required to train them. And lastly that there is less bureaucracy and politics to impede the implementation of TQM. [6,pp.24-25]. Marotta Scientific Controls, Inc., which won the George M. Low Trophy: NASA's Quality and Excellence Award, believes that implementing TQM in a small business is easier because, " . . . everything is on a smaller scale and communication is easier." [7,p.32]. One of the 1990 Baldrige Award winners was the Wallace Co. Wallace attributes the

closeness between management and staff for the success of the process. All-Power Company, a small job shop, feels their successful implementation of TQM techniques was due to having better visibility of problems. [3,p.16].

Inspection vs Process Control

Businesses that are concerned about shipping product with minimal defects have two basic methods to choose from. One is, they can implement some form of inspection. This can be final, in-process and/or receiving inspection, where they detect errors and rework or scrap the product. Secondly, they can implement a TQM system that makes use of some form of process control.

As seen above, several small businesses that have successfully implemented TQM, believe there are many advantages for them in the implementation process. Also, that TQM is essential for survival. Yet Grey and Seaman state that, "There is overwhelming evidence in the literature which suggests that small companies typically are unaware of the benefits of statistical quality control, and that they rely primarily upon product oriented inspection." [4,p.26]. Even All-Power's employees, before they implemented their TQM system, relied upon final inspectors to find defects and return the product for rework. They found that their customers were receiving quality product, but it was costing them too much to produce it. [3,p.15].

The key elements of TQM for a small company

Since inspection of product at the end of line may produce quality product, but at too high of a cost, what elements of TQM should a small company focus on, if they are hesitant to eat the whole cow? Lander, of Marotta Scientific Controls, believes that if a company has a lack of resources, it should develop a customized program for its own needs based on what it can afford. [7,p.32]. To be successful in implementing a Quality program, small businesses need to be open to the techniques of statistical process control. [3,p.26]. Globe Industries, the 1988 small business Malcolm Baldrige Award winner, believes that the focus should be on process control and understanding the customers' needs. Marotta Scientific Controls focused on training their employees in process control and problem solving. They believed that, "'If you can't measure it, you can't manage it.'" [7,p.32]. All-Power also agreed that understanding the customers' needs was the most important item for installing a TQM program. The major focus of their TQM system was based on statistical process control. Since All-Power has implemented their TQM program they have reduced the number of Inspectors significantly. They have gone from 10 initially down to 3; totally eliminating in-process inspection. [3,p.16-17].

Although it appears that process control is key, some customers may require some level of inspection. This could be a sample or 100%. As described in Quality in Manufacturing, the job shop should still use quality methods and equipment and consider

automated data collection and SPC. [1,p.20].

How to implement TQM in a small company

Since it is considered necessary for survival to implement TQM in order to provide quality products at a competitive price, how should a small company go about it? The key element to the successful implementation of TQM mentioned in the literature is management support. Without management support, TQM cannot be implemented in a small or large company. As described above, one of the key advantages of small companies was the ability for the company leader to easily promote the TQM system. Since the TQM philosophy is such a major change for all employees within the company, it must be driven from the top down. Rankine, President of All-Power believes their success was due to the commitment of management. [2,p.17].

Once there is commitment, management must have some basis on which to model their quality system. This can be done by using some existing model such as the Malcolm Baldrige criteria. Marlow Industries believes that, "The Baldrige Award is the mechanism by which you can operate your business..."

Some companies have hired consultants to develop their quality systems. This appears common among small companies that have limited resources and may not have the knowledge internally to develop a quality system, and are hesitant to hire a permanent employee. Both Marlow Industries and Marotta Scientific Controls have hired consultants to provide TQM training to their employees. [7,p.32]. All-Power also hired a consultant to provide training

and support of the TQM implementation process. [3,p.15].

Other small businesses have used the assistance of a large customer. In the case of Globe Industries, large businesses such as GM, Ford and Dow assisted in the TQM effort by making in-house resources available. [7,p.30]. Since most small companies are suppliers of large companies, most of them would not refuse to help by offering technical assistance. [7,p.32]. Interaction with a large business customer appears to be critical for small businesses implementing TQM. This will be discussed further in the next section.

Another method that has been used is benchmarking. It is not necessary for each small company to reinvent the wheel. There are many companies that have implemented TQM and are willing to share the information. This is a very useful technique for small companies that lack resources and time. [7,p.30].

It is very important that small businesses identify the requirements of their customers. [7,p.30]. As mentioned previously, this is one of the key elements of implementing a TQM program. With limited resources, it is important that small businesses do not expend efforts needlessly performing tasks that may have to be changed due to customer demands.

Once the customers' needs have been defined, including the critical parameters of the product or material to be produced, the small business must determine how to control their manufacturing process. The focus needs to be on statistical process control methods that can be used to reduce variation. These methods do

training for their employees. Some hired consultants to provide the training, but there is a high cost involved with this. Marotta Scientific Controls hired a consultant to train a local community college instructor in such areas as SPC and TQM tools. The college instructor could then teach the class for about a fifth of the consultant's price. [7,p.32]. Other small businesses utilized the resources of a large company customer to provided training or access to books and literature for the training process. Many large companies are very willing to help small suppliers if the assistance is for the eventual improvement of the product. [7,pp.30,32].

The staff also must be enabled to make decisions and speak out when problems are found. Providing the training to all of the employees in the small businesses is not the difficult part. The key is getting them to use this knowledge, as employees are used to being directed and not providing input. At Wallace company there was a long period where nothing happened, but eventually the organization went "through a paradigm shift" and employees began speaking their minds. [7,p.33].

Implementing a Total Quality Management program in any business is a long term process. Management must not expect immediate results, and therefore they need to be persistent. Employees need to be patient, and management must celebrate small wins to encourage the effort. Marlow Industries stressed the importance of paying attention to the employees during the long TQM implementation process at their company by having frequent pizza

parties. [7,p.32]. This is another advantage that a small company would have over a large, that being the cost of celebrating accomplishments would be minimal.

How can a larger company (customer) assist a smaller company (supplier) in implementing TQM.

As discussed earlier, even though there are many advantages to being a small business in the implementation of TQM systems, many small businesses are still reluctant to move forward. Many prefer to continue with the standard method of inspection. In the Baylor Business Review, Riley describes how large industries are being humbled by international competition. In order to meet higher standards of quality, these large companies are pressuring their small business suppliers to adopt the latest quality techniques. [4,p.26]. If a large company is in a position whereby they need to improve the quality of the material in their product, but their small suppliers have not implemented TQM, how can they be of assistance? The large company could impose the same quality system they use themselves, but Grey and Seaman believe that this would be counter productive, as most large companies have little knowledge of the product or processes used by the small supplier. The main reason large companies outsource materials is to take advantage of state-of-the-art technologies they themselves do not have. [4,p.27]. Instead of imposing themselves on the small company, the current direction is to form a collaboration between the large and small company. Grey and Seaman list several factors to