

HOW TO MAKE A SMALL COMPANY'S SERVICES SUCCESSFUL

by

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Abstract

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Stone Machinery is a small business company in sense of business scale and human power. Yet it needs to provide satisfactory after-sales services to its customers who are scattered in a large area. The service personnel have had to undertake the overwhelming workload. The customers have had complaints about the services. This project was to identify the problem existing in the current service operations and submit a proposal to improve the service operations.

A thorough investigation was conducted after a

literature research for determination of targets, goals, and methods. A comprehensive working plan was proposed with all service personnel's participation following the investigation.

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Table of content

<i>Abstract</i>	<i>i</i>
<i>Acknowledgement</i>	<i>iii</i>
Chapter One: Introduction	1
Introductory Summary	1
Statement of Problem	1
Objectives	2
Definition of Relevant Terms	2
Service.....	2
Machine Tool	3
EDM.....	3
CNC	3
Background of the Company	4
Research Method	8
Sampling Method	8
Data Analysis	10
Conclusions and Recommendations	10
Chapter Two: Literature Review	12
Introductory	12
Service Dimensions	12
Service and Its Quality	14
Customers' Expectations and Acceptance	15
Customers' Needs	16
Find out Prime Services	16
Speed of Services	17
Human Resources	19
Three Decades in Retrospect	19
A Common Phenomenon in Management	20
Success Examples in Managing People.....	21
Human Behaviors	23
Human Needs	23

Social Identity.....	26
Management.....	27
Finding the Real Cause of Success	28
Cost Cutting/Downsizing vs. Performance Improvement.....	29
Management Styles.....	31
MBO vs. MBWA	32
Reactive vs. Proactive	35
Managing People.....	36
Working with Trust and Honesty	38
People Culture.....	38
Leadership.....	40
Being a Leader While Being a Manager	40
Effective Leadership.....	41
Leadership Styles	43
Components of Leadership.....	44
Teamwork Challenge.....	46
The Essential Elements of a Team	47
Don't Limit People's Access to Information	48
Self-managed Teams.....	49
Example of Self-managed Team	51
Loyalty	51
Implementation.....	53
Vision	53
Concept of Self-Leadership.....	54
Use PDCA (Plan-Do-Check-Act) as a Learning Tool.....	55
Problem-solving model.....	56
Summary of Literature Review.....	56
<i>Chapter Three: Method of Research and Data Analysis</i>	<i>58</i>
Introduction.....	58
Survey	58
Sampling Method	58
Instrumentation.....	59
Administration of the Survey.....	60
Result of the survey	60
Survey Data Analysis and Discussions.....	64

Chapter Four: Conclusions and Recommendations	67
Teamwork.....	67
Proposed Solutions.....	71
Mission Statement	71
Vision Statement	72
Implementing quality management in services.....	72
Changes in Management	74
Competitive salary.....	74
Extensive Training	76
Comprehensive Incentive Plan	77
Open-book Policy.....	77
Fully Utilize all Modern Technologies.....	78
Current usage of ACT!	80
Explore the ACT!	81
Architecture of New Database	84
Integrate all Technical Information to Computer	85
Conclusion	86
Appendix II.....	89
Reference	91

Chapter One

Introduction

Introductory Summary

Small business companies have fewer employees than the large companies. Yet, small companies must have almost all the same functions as the large ones have. As a result, the employees of a small company are often required to be multi-functional. When the service territory covers a large geographical area and door-to-door services are required, it requires a good management in the service department to use minimum human resources to achieve the goal of satisfying all the customers while being financially profitable.

Stone Machinery is a small company in both business scale and number of employees. Yet it needs to provide satisfactory after-sales services to its customers who are dispersed in a large geographical area.

Statement of Problem

The purpose of this project was to identify the attributes and factors that affect the performance of the service department of Stone Machinery, and the

existing problems in the company, which affect the service operations.

Objectives

The objectives of this project were to determine:

1. The most important attributes of Stone Machinery's customers service as perceived by Stone's customers (such as timeliness, proficiency, and efficiency of the services).

2. The attributes that are most important to affect Stone Machinery's service performance (such as manpower, quality of service personnel, culture, employer/employee relationship, management, and technology).

3. The problems that exist in Stone Machinery, which affect satisfactory customer service and operational efficiency.

4. The approach for achieving the goal of providing satisfactory services to the customers.

Definition of Relevant Terms

Service

The term of service used in this project is referring to customers' service in general and machine tool after sales service in particular. The service

covers all functions which occur after the purchase of goods is finalized. It includes providing technical information for pre-installation before the delivery of machine, installing and setting up the machine, training the operators, repairing and maintaining the machine.

Machine Tool

The machines that cut or/shape materials such as metal, wood, plastic, etc.. The commonly used machine tools include mill, lathe, press, grinder, extrusion machine, and EDM.

EDM

EDM is the abbreviation for **E**lectrical **D**ischarge **M**achine. It uses the discharged electrons to remove conductive material from the work piece so as to cut or form the part.

CNC

CNC is the abbreviation for **C**omputerized **N**umerical **C**ontrol. The core of CNC is a computer (either a generic one or a dedicated one) with special software for executing the instructions which are in numerical form. The machine tool with CNC control can obtain very high precision with very high speed and efficiency. CNC machines can also cut complex and

complicated surfaces or contours that otherwise will be very difficult or even impossible to achieve by using other means.

Background of the Company

Stone Machinery is a machine tool distribution company based in Golden Valley, Minnesota. It was founded by Chuck Stone in 1950. In 1986, it was co-owned by Tom Drazkowsky and Don Akins. Currently, it has eleven employees. The company sells machine tools and servicing of those machines. The territory which the company covers includes Minnesota, Iowa, the western part of Wisconsin, South Dakota, and North Dakota. The company's yearly sales volume was 2.2 million Dollars in 1998.

Stone Machinery mainly sells machine tools and other equipment for mold/die making, prototyping, modeling, machining/fabricating and toolroom applications. The products which currently Stone Machinery sells include Hurco CNC milling machines with the patented Ultimex control, CNC turning machines from FEMCO and Emco Maier, CNC machine centers made by Johnford and Awia, EDM from Aristech, mills, lathes, EDM from Chevalier, and several other companies

products. Most of the products which Stone Machinery sells are state-of-the-art and their design and technologies keep changing from time to time.

Over time there are over 500 customers who have bought equipment from Stone Machinery. These customers are loosely scattered over western Wisconsin, Minnesota, Iowa, South Dakota, and North Dakota. Several customers have their affiliations in Arkansas or Montana. The size of those customers varies from small private garage shops to large industrial workshops in large companies such as Honeywell and 3M.

Stone Machinery is a small company. However, it has all business operation functions required for a larger company. Due to the fact that it covers a relatively large geographical area, it requires a lot of travel for the sales and service personnel.

Unlike the operations of automobile dealers, which the service and parts sales operations centralized in the dealers' own building, Stone Machinery sells machine tools to its customers and installs the machine tools in the customers' buildings. It is rather like the sales and services of appliances to households such as dishwashers, refrigerators, washing machines, and dryers. However, these machines are much more

complicated compared to even the most sophisticated Maytag machines in the sense of either the size, parts counts, or the sophistication of their controls.

Because of the fast advance in the development of new techniques and new components, especially the revolutions in the computer technologies, the machines' manufacturers keep changing models of hardware and versions of software from time to time. The oldest CNC machines that the company has sold and still need to service are dated back in 1980's. They are the first or second generation of CNC machines. Those machines have an extra problem besides the wear and tear: some of their control systems are very primitive. They are the older generation of the computer-controlled machine tools. Quite often, those old machines do not have complete technical documentation. The documents were either never completed or lost over time. Because of the age of those machines, replacement parts are hard to procure some times. It made the diagnosis or repair more difficult. All of these impose extra difficulties on servicing those old machines.

Quality of after sales service is vital to the success of the company. It is true that choosing a good company's product is important to a distributor.

However, no matter how good quality of products could be, all the machine tools need to be installed properly and set-up properly. Due to the nature of the high precision of these machines, they must be tested and adjusted on the site to ensure they meet the specifications. The customers also need to be trained properly so as to be able to operate the equipment safely and efficiently. With today's fast advancing of technologies, especially in electronics and computer, the controls of these machines are updating very rapidly. Some companies release new software versions every four to six months. Sometimes the changes between the versions are significant.

No matter how good a machine was designed and manufactured, it may malfunction. When the machine is down, the customers lose their productivity. The loss can be great under certain circumstances. Some company may lose their contract or be subject to severe penalty because of being unable to deliver the parts on time.

Because of the demanding and challenging nature of service operation, capable service technicians (now they are more and more called service engineers) are difficult to find. It usually takes six to nine months to find a capable service engineer after the job was

posted in newspapers. Most of the newly hired require a certain degree of training to familiarize the products.

Over time, there have been many people coming and leaving at the Stone Machinery's service personnel position. Some people have not stayed longer than six months. There was a time Stone Machinery had no full time service personnel available except a contracted mechanic.

Realizing that the quality of service will eventually affect the sales of the company, the owners of the company felt the need of working out a good strategy and work plan to improve the company's service operations while remaining financially self-sufficient. In summary, the goal was to increase the customers' satisfaction in after-sales service with minimum human resources.

Research Method

This field project was decided to be a descriptive research.

Sampling Method

A customer survey was conducted to obtain customers perception and expectation regarding Stone

Machinery's service. The subjects of the survey were the customers who have bought machine tools from Stone Machinery. The questionnaire was approved for the protection of human subjects. The questionnaires were sent to all Stone's customers along with the invitation to Stone's open house. The total number of questionnaires that were sent to the customers was 509.

The survey was designed to utilize Likert scale for questions to obtain raw data regarding customers perceptions and expectations. Demographic questions were not constructed because all the subjects are business entities.

As part of the investigation, all employees had been involved in identifying the problems that exist in the service department. Meetings were held to get the employees' opinions, perceptions, and expectations about the company and their career. A series of discussions with the owners had been conducted to obtain their visions of the company and service department, their expectations about service performance, and their objectives on service operations.

Data Analysis

The completed questionnaires were returned to the researcher by mail or turned in during the company's open house. Out of 509 questionnaires sent, 421 were returned. The return rate was 82.7 percent. The raw data was processed and analyzed. The means of answers to each question and the ratio of each class of answers were analyzed.

Conclusions and Recommendations

A conclusion was drawn after studying and analyzing the survey results and the company employees' opinions as well as the owners' thoughts. The researcher found that most of Stone's customers perceived Stone Machinery's service quality as average (3.18 average point in a 5 point rating system, and 55.8 percent of customers who answered the survey rated Stone as average). The researcher found that the main drawback of Stone's service was the responding time of service calls (3.25 average point in a 5 point rating system), with 64.4 percent of customers rated the timeliness of responding as average). This meant that the majority of the customers were not satisfied with the responding time. It was found that customers had

to wait long (19.5 hours in average) to get the service personnel to show up at the site. Through the group discussions within the service department, it was also found that the service personnel were suffering from fatigue caused by sustained heavy workloads and stress.

It was decided to get every employee involved in improving the quality of service operations. With all the input from all employees, a working plan for improving the service operations was proposed after the major problems had been identified.

Chapter Two

Literature Review

Introductory

After-sales service is vitally important to the survival and success of a machine tool distributor. There are many factors and aspects affecting the performance of service operations and degree of customers' satisfaction.

To begin the research, a full-scale knowledge body on the relevant areas must be established. For this purpose, a review of literature was done. The subjects of literature review included service quality, customers expectations, consumers behaviors, human behaviors, corporate cultural effects on performance, management and leadership, quality management, as well as some good examples of management.

Service Dimensions

In order to judge the quality of services, some measurable or observable dimensions of services should be developed and the consumers' expectations and perceptions on the services should be considered.

Recent studies in service marketing suggested that consumers expect to experience and perceive service

quality in terms of series of empirically observable dimensions. The dimension of service quality was first identified in appliance repair, retail banking, long-distance telephone service, securities brokerage, and credit-card services. This concept of service quality has since been profitably used for a range of services (Zeithaml, Berry, Parasuraman, 1988).

The dimensions, which seem to apply to virtually all service businesses, include: (a) tangibles (physical goods and facilities, equipment, and appearance of personnel), (b) reliability (ability to perform the promised service dependably and accurately), (c) responsiveness (willingness to help customers and provide prompt service), (d) assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence), and (e) empathy (caring and individualized attention the firm provides its customers) (Dube, L. Renaghan, L M. & Miller, J. M. 1994).

Parasuraman (1991) similarly identified ten dimensions of service quality based on focus group interviews: (1) reliability, (2) responsiveness, (3) competence, (4) access, (5) courtesy, (6) communication, (7) credibility, (8) security, (9)

understanding and knowing the customer, (10) tangibles (physical facilities, etc.). It was determined to construct questions of the survey to cover these dimensions.

Service and Its Quality

There are some differences between service and goods. Zeithaml, Parasuraman, & Berry (1990) described four ways in which service was different from goods: (a) intangibility, (b) inseparability of production and consumption, (c) variability in performance, and (d) perishability. According to this theory, service is intangible in which it is not measurable or objectively definable. The output of a service (such as repairing equipment in a customer's shop) is more abstract. With the linkage of service, production and consumption are inseparable. This can be taken to mean that a service, unlike a product, usually requires a certain degree of closeness between producer and consumer--the provider of service is not unknown to the customer. A rude machine tool company's service engineer or receptionist is directly confronted by the customer, sometimes with unfortunate results. Finally, services are perishable in that they cannot be stored or inventoried (Mills,

1986). This implies that consumption is immediate, and that services not used (such as a machine repair service with no customer patronized) are lost forever.

Zeithaml, Parasuraman, and Berry (1990) studied the delivery of service quality. Both the process and the outcome of the services were evaluated. The study suggested that high service quality was an important element of peak performance. Also it must be recognized that service quality evaluation should be multifaceted.

Gronroos (1990) provided the most useful distinction between components of quality evaluation. He asserted that quality was composed of technical quality (**what** the customer observed in the actual delivery of the service) and functional quality (**how** the service was delivered). These qualities both contributed to a global quality evaluation. This theory had obvious use in designing and evaluating a machinery service operation.

Customers' Expectations and Acceptance

Customers expect different things from the service providers that they choose, and their expectations vary depending on the type of services they receive. In order to determine the customers' expectations and

acceptance, the questions of the survey should include both customers expected and experienced service quality dimensions.

Customers' Needs

Find out Prime Services

Finding prime services and continuously innovating new service features is vitally important to a service business. "It's easy to understand why product innovation, spiritually as well as commercially, is the renewing force of any business" (Heller, 1995, p.255).

There are many good examples of innovative new product making companies better. As Heller (1995) recounted, Ryazuburo Kaku, one of Japan's greatest but least celebrated managers, emphasized the product innovation in an unforgettable way. Kaku was a junior employee in Canon's finance department. By plotting Canon's new product innovations, he found that every burst of innovation had coincided with, and undoubtedly caused, a surge in profits. Therefore, Kaku concluded that in order to achieve sustained advance, new products had to flow, not in the previous fits and starts, but in a steady, enriching stream. Kaku's exploitation of the logic of new product development at Canon had produced

successful results as he predicted. For a machine tool service business, the product that it provides is service. It is obvious that Stone Machinery needs to innovate some new service items and/or features to have a good footing in the highly competitive market.

Speed of Services

One very important factor of customers' need is the speed of services. "Time is money" is common sense. People want to get what they want as soon as possible. For Stone Machinery's customers, they want a fast machine to produce parts quickly and precisely. After they order the machine, they want a fast delivery; when they receive the machine, they want a fast installation and training; when the machine unfortunately breaks down, they want the machine being repaired quickly.

With the revolutions in technologies, many fast products and services are available. Davidow (1992) listed some examples: Prescription eyeglasses can be made and fitted into customers frames in 60 minutes; Polaroid provides the 60 second photography to people; Electronic cameras play pictures on a TV set a moment after they have been taken or print them in seconds; Camcorders create instant movies; Personal computers

and laser printers have made instant desktop publishing possible in millions of homes and office around the world. Instantaneous services are available, too. Many auto shops provide quick oil change for us in ten minutes; instant travel reservation by telephone or internet; instant cash/money transfer; fast package delivery; and even the fast food is trying to get faster: Trager (1991) reported that "Taco Bell's Express stores aimed at fulfilling each customer's order in less than 20 seconds" (p.E-1). What these products and services have in common is that "they deliver instant customer gratification in a cost-effective way" (Davidow, 1992, P.4).

From the literature review on Customers needs, It can infer that Stone Machinery needs to create an adaptive system to respond the ever-changing customers' demands. The only way to give a truly instant service, one that adapts in real time to the customer's changing needs, is to maintain integrated data files on customers, services and methodologies of creating and rendering services. Fully utilize computers and computer software will make this possible.

Human Resources

"Human resources" is the current term used for labor. It is one of three factors of production along with capital and raw materials. In service business, human resources play a very important role in the operations. In the recent decades, industry has gone through cycles in which it has put undue emphasis on one of these factors or another. It is worthwhile to review a little bit of history on this aspect.

Three Decades in Retrospect

Hindle (1993) retrospected the industries' emphasis of the past three decades as follows:

During the past three decades, American business people's emphasis has been shifting from one thing to another. The 1970s was the decade of raw materials, with OPEC (Organization of Petroleum Exporting Countries) successfully monopolizing the oil market, a frenzy of excitement about rather useless commodities like gold and silver, and the setting up of a number of commodity agreements that soon proved unworkable.

The 1980s was the decade of capital, with investment bankers throwing money at projects that number-wise accountants told them were sure to

make a profit. In too many cases they were wrong. The 1990s looks prepared to be the decade of human resources, when companies get terribly concerned about training their workforce and about holding on to a decreasing number of highly trained employees. As in previous decades the enthusiasm will probably be overdone (p.151-152).

It is obvious that after so many years good and bad experiences, the people in managerial area have realized the importance of human resource and started paying attention to it.

A Common Phenomenon in Management

There is a very common phenomenon existing in managerial area. As Pfeffer (1998) pointed out, something very strange is occurring in organizational management. Over the past decade or so, numerous rigorous studies conducted both within specific industries and in samples of organizations that cross industries have demonstrated the enormous economic returns obtained through the implementation of what are variously called high involvement, high performance, or high commitment management practices. Furthermore, much of this research derives to validate earlier studies on participative management and employee

involvement. But even as these research results pile up, trends in actual management practice are, in many instances, moving in a direction exactly opposite to what this growing body of evidence prescribes. Even as firms desperately seek success and the evidence for at least one important source of economic success -- how firms treat their people -- accumulates, many if not most organizations are doing precisely the opposite of what they should. Even as managers repeatedly say, "people are our most important asset", many of them do the opposite.

As a lesson learned the hard way, more and more people have found or realized the importance of human resources. To us, the tough task is to find the way of managing people effectively as a source of outstanding organizational performance. But the first step is to truly recognize the importance of employees and their contributions to the success of the company. When managing the service operations of Stone Machinery, the first priority is to fully use the human assets.

Success Examples in Managing People

There are many successful examples in managing people. Here is one example: American Eagle, the leading retailer in the U.S. in terms of performance in

1998, attributed its success to a good corporate culture. They think that caring about employees as individuals was the key factor to the successful turnaround of the outfitter. The company rewards employees who perform and does not hesitate to promote from within. When it does outside hiring, it makes sure that it selects the country's brightest retail talents. It also boasts a high employee retention rate, which it credits to its compensation and benefit programs that are based on performance alone. As Bergdahl (1999) stated, "The retailer believes that its 'people' culture will continue to be a key ingredient to its future success" (p.114).

Another good example: Pfeffer (1998) cited the success of Tom Farmer, the founder and CEO of Kwik-Fit -- the market-leading supplier of automobile repair services in the United Kingdom and Netherlands, despised the common obsession with finding some magic strategic "fix". He said, "In a service business, there is only one successful strategy-to provide your customers outstanding value and service-customer delight." He recognized that customer service depended on having people who felt good about the organization and world, therefore, care about the customers. Tom

has built the business on his recognition that people are the company's most valuable asset-the all-important contact with the customers-and the key to success (Pfeffer, 1998, P.17). These two examples are very useful for Stone Machinery's management to consider their practice in utilizing human resources.

It is obvious that one of the major tasks of Stone's management is to explore the effects of high commitment work practices on organizational performance and seek to understand the reasons why these manifestly effective ways of managing employment relations weren't more commonly or readily adopted. Therefore, they can get benefits from those of others who have made mistakes.

Human Behaviors

Human Needs

In order to be successful in managing people, we need to understand human behaviors. A logical way to begin the research on human being's behaviors is by identifying employees' needs, attitudes, and decision processes.

All the services eventually are rendered by the employees- the human beings. Human beings have many

needs to be filled. Maslow (1987) hypothesized that within every human being there exists a hierarchy of five needs. In an ascent order, these five needs are (a) physiology, (b) safety, (c) social, (d) esteem, and (e) self-actualization. The five needs were further divided into two groups: lower order and upper order. The lower order includes physiology and safety. The upper order includes sociology, esteem, and self-actualization. His hierarchy of needs theory indicates that human beings need to have the lower level needs satisfied first to generate the higher level needs. The physiology needs are at the lowest level. They act as the fundamental needs.

Maslow further established the hierarchy of needs in workplace. In ascending order they are:

Security and self-control

Social relationships

Self-esteem

Status and recognition

Achievement and challenge

Power

Creativity

Self-actualization

The "needs" approach in psychology is also

congruent with a functionalist framework, since needs can be both hierarchically arranged and tend to be satisfied according to priority. The needs themselves can also be seen as having specific functions. Thus, Mayes (1991) spoke of such sociopsychological needs as curiosity and adventure, which require satisfaction. She discussed curiosity and adventure -- a complex function that was related to a number of other psychological functions such as motivation, arousal, attention, and novelty preference -- that represent a separate ego function those are closely tied to objects and are centrally organizing in all phases of development. Mayes also regarded curiosity as an integrative function that regulates arousal, motivation, and affection. It begins in infancy, and does not seem to lessen as individuals grow older.

Through meetings with the employees, it was found that the employees all want the company to grow better. They want the company to be prosperous so they can get better pay or at least they can feel safe to work in a prosperous company. Meanwhile, they expressed their desires of being treated decently and friendly. They want the employer to show the respect to his or her employees and recognize their efforts to improve the

company. They also want to know what is the employer's goal in sense of the company's growth. One of their "Wants" was the want of better communications from the employers to them. All of those "wants" conform to the human "Needs" which have been found by the scholars in this area.

Social Identity.

As cultures have intermingled, the importance of social-cultural identity has increased. The individual sees new possibilities and may make alternative life choices. Civilization has satisfied the basic human needs. According to Maslow (1987), the needs of human beings fall into five categories. The psychologist theorized that when needs at the lower level are satisfied, needs at the next level emerge. For example: A starving man possesses little energy for self-expression; but a well-fed man, secure and loved, has energy for creative needs. No longer concerned with security of group identification, man strives to define the cultural and individual identity (Pfeffer, 1998).

Social identity has a significant weight in a human being's mind. Therefore, the employees must be

well paid so they will feel secure, being respected, and accomplished. They will work harder and better. Their titles also need to show the importance of their position. That is the reason of why many companies call their employees associates and many of machine tool dealers call their service personnel service engineers. It is very obvious that Stone's service engineers' salaries should be the same level as the competitors' in the trade.

Management

Management is difficult. No one ever said getting people to do things would be easy. No one ever promised you a boss would be considerate, supportive and effective.

There are few things or topics that can be regarded as completely useless to managers. As Martin S. Davis, Chairman and Chief Executive Officer of Gulf Western Industries, Inc., wrote: "American's managers have come through economic trials far tougher than they were accustomed to. Along the way they have learned that some old precepts they had abandoned still have validity, while some new approaches have proved fallacious. Regardless of their age or the age of their organizations, they are coming through another

stage of corporate maturation. They are experiencing a new self-awareness, and seeking to change about themselves what they recognize needs to be changed. It's not a painless process, but it is a process that cannot be avoided if there is to progress" (Davis, 1985, p.19). For Stone Machinery, even though the company has been established for nearly 50 years, management is still the major matter to be focused on.

Finding the Real Cause of Success

It is important to distinguish the success that occurs "in spite of" some set of behaviors with success that results "because of" a set of practices. Marshall Goldsmith, a noted consultant on leadership, noted that when people reached high leadership positions, attainments that attested to their success, they tended to see everything they did as contributing to that success. He pointed out that "some of their success was "because of" particular behaviors, but some of their success occurred "in spite of" other behaviors that were actually counterproductive" (Pfeffer, 1998, p.17).

It is important for Stone Machinery's management to understand which practices actually contribute to success. It is imperative not to be seduced by

generalizations based on either a too aggregated or a misleading interpretation of the evidence.

Cost Cutting/Downsizing vs. Performance Improvement

Many people use a conventional wisdom which thinks that the way to economic success is to cut costs, thereby improving profit margins and stock price and leading to other good outcomes. One of the quickest ways to cut costs is to cut people. So, downsizing has become quite fashionable. Meanwhile, some people think that a better way is to enhance and/or improve the performance of the operation so as to achieve revenue growth.

As Gertz and Baptista (1995) noted that "whether they call it cost cutting or downsizing or restructuring or reengineering, a great many U.S. firms have been actively pursuing strategies to make themselves smaller: fewer employees, fewer operating units, and fewer subsidiaries."(p.1). Downsizing can be a very good practice when the organization is FAT. However, it is a two-edge sword. As Pfeffer (1998) pointed out, the strategy of downsizing is unlikely to provide sustainable advantage over any significant period of time. Laying off employees can be done by any organization with sufficient stomach for the task.

Anyone can hire an investment banker to dispose of assets such as divisions or facilities. Downsizing does ensure that the resulting organization winds up smaller. But downsizing, by itself, cannot fix problems with products and services, with time lags in launching new products or services, with quality, or with any of the other myriad factors that help to determine success in the marketing, with its significant costs in employee morale and motivation; potential quality problems. Furthermore, diversion of attention to costs, job loss and fear, away from customer service, and revenge growth does not even effectively reduce costs.

There is a dramatic increase in contingent work arrangements. For example, use of part-time, temporary, or contract employees-as well as a growing reliance on corporate downsizing, both of which diminish the connections between people and their organizations even as the organizations using these strategies claim to be seeking a committed and motivated work force.

Furthermore, a study of one thousand large U.S. companies found that "investors place a much higher value on companies that improved their bottom lines

through revenue growth than through cost cutting... The reason for this clear preference may be a recognition on the part of investors that gains made through cost cutting represent either a single event or one that can only be repeated a limited number of times" (Pfeffer, 1998, p.15). Stone should take this as a good lesson. Even though as a small company, cost cutting is important. However, the cut on human resources and outside contracting would be harmful to customers' service.

Management Styles

Management style is a very important aspect in successfully running an organization or operation. How a manager treats the employees largely determines how the employees perform. One can trace the principle of "You get what you give" all the way back to the Bible: "For whatsoever a man soweth, that shall he also reap" (1 Cor. 6:7). Sow a different management style, and you will reap a harvest of morale and motivation (Werther, P.7). There are many ways to fulfill a task. When it comes to how a manager handles his/her job - the way he/she manages the employees, he/she has choices. A manager can choose to manage the employees in a

different manner. This won't be easy, any many times habit will cause one to fall back into his/her old managing ways. Nevertheless, a manager can choose how he/she wants to treat the employees and how the employees perceive this treatment. The key is to handle some aspect of management differently so one can experience choice in his/her leadership style, or at least in some aspect of it (Werther, 1989, P.6). When facing a problem that is difficult to find the solution, one way out of this dilemma is to talk with employees. Even if the employees pick the second best choice, their involvement means greater commitment from them. The employees cannot support what they don't understand. Getting them involved may make the difference in the execution of the solution (Werther, 1989 P.79). It is obvious that Stone's management needs to focus on managing skills.

There are many different management styles. They all work fine. It is important to find a suitable one and use it properly. A research in this area is very useful for selecting the right managing style.

MBO vs. MBWA

There are many different types or approaches of management. Among them, two major ones stand out: MBO,

A term originated by George Odiorne in 1980's. It stands for "management by objectives." Meanwhile, MBWA a term popularized by Tom Peters and Bob Waterman, stands for "management by walking around." Managers, who like to set goals and measure progress toward them, love MBO because this approach ensures tangible, graspable, clearly identifiable objectives. Hickman (1990) analyzed these two styles in details. Because MBO allows managers to make people in the organization accountable for accomplishing specific objectives, this approach comforts managers, who want to see that people and the organization are moving along the right track.

On the other hand, leaders, who like to get a feel for the way people perform in daily situations, derive a lot more comfort from MBWA. Leaders like to assess first hand what's really happening in their organizations, and they can accomplish this best by literally walking around, talking to people, and remaining in the constant contact with the flesh and blood of the organization.

Unlike managers, who prefer to develop hierarchies of objectives, all relating back to a set of overall objectives, leaders would rather establish a common purpose or philosophy and then stay in touch with

people throughout the organization to make sure that they work in sync with that guiding purpose.

Both approaches work fine and effectively in some circumstances. However, they also won't work well in other circumstances. The MBO approach is good on clearly laying out the objectives and goals, convincing each of his/her subordinates of their importance and then measuring the progress. It works fine in most situations (at least for a short period). However, it is found that many employees under such management approach feel hampered by lack of communication and interaction with the management regarding how to specifically go about achieving certain goals and objectives. It also appeared that the employees' initiative and accountability don't reach the level which the manager expected.

For the MBWA approach, it also works fine (also at least for a short period). It enhances the interaction with the subordinates once goals and objectives are set. On going communication, including frequent face-to-face discussion of precisely how to accomplish goals, how to remove obstacles, and how to solve problems and make decisions associated with the goals make it very effective. However, as the organizations

grow, it becomes more and more difficult for the leader to maintain contact with everyone in the organization. People have the tendency of relying on the leader's presence for clarifying expectations and inspiring, initiating and providing feedback. The dependency of people makes the leader think that his/her people lack the desired initiative and accountability.

In reality, the best way is to use both MBO and MBWA approaches, because both approaches can help achieve an organization's overriding purpose and collective objectives. Those who are comfortable with one approach should grow more comfortable with the other approach.

Reactive vs. Proactive

We are facing changes everyday and we have to deal with them. Both managers and leaders respond to change, but in inherently different ways. Hickman (1990) differentiated the difference between the managers and leaders. The manager's mind preoccupies itself with change that has already happened or is currently occurring. Managers feel most comfortable in a defensive, "after the fact", rather than an offensive, "before the fact" posture, justifying such behavior by pointing out the folly of acting

prematurely in any situation. Change is not real until it happens, then managers react to it.

The leader's soul consumes itself with anticipating or creating change. Generally taking the offensive, leaders proact in an effort to make change happen. They do not mind taking action before it becomes necessary. In fact, they'd rather force changes than let circumstances thrust changes on them. Even distant change is real for leaders because they are constantly trying to anticipate it.

Managing People

Waterman (1994) had proved an important insight on the connection between strategy and effectively managing people. He recognized that organization-people, culture, capability- are important sources of competitive advantage. In a sense, people are the strategy. He said:

Organizing to anticipate and respond to customer needs ... seems like a simple idea ... it's at the heart of what we ought to mean by strategy....

For many managers, strategy ... has meant either coming up with a brilliant idea or slamming the competition.... the companies I researched do

look for sustainable competitive advantage....
they get a sustained advantage from the way they
organize, not from the brilliant idea. Because
they persist where others give up, they accomplish
the most difficult part of the strategy...
implementation, that is getting what is often a
simple idea done and getting it done right" (P.21-
22).

Bollier (1996) cited the success of Springfield
ReManufacturing Corporation (SRC) and its legendary
leader: Jack Stack. Jack, at age 33, has orchestrated
the most highly leveraged buyout in American history,
then rally a demoralized work force to buy and
transform their cash-dry, poorly performing engine
factory into an economic powerhouse. The 119 workers
and managers of SRC, with no any financial expertise, a
small customer base, and low productivity, has
multiplied the value of their company's stock by 18,300
percent in six years. The "secret" of SRC, in Jack's
own words, did not come from an ivy-covered university
or a big-time management consultant. It came from the
employees themselves (P.169).

Working with Trust and Honesty

The SRC workers and management together invented a highly original way of operating a company that combines "business education" for all employees with active participation and employee stock ownership. One of the evidences of trust is the "open-book management" which is the central part of their system. It made every numerical assessment of every part of the business being available to every employee. The radically decentralized system has not only helped SRC constantly to improve its performance. It has turned the company into a cohesive community that thrives on enthusiasm, hard work, and fun. Which is why the folks at SRC call it "The Great Game of Business". (Bollier, P.170) Consequently, in many business areas, The Great Game is hailed as a homegrown answer to the renowned teamwork of Japanese Business.

People Culture

With a perspective that saw people as costs, U.S. banks invested heavily in technology and made extensive use of part-time help, minimized training, and used outside recruiting to fill positions that required higher level skills. The consequence of these

employment policies was, not surprisingly, high turnover rates. Keltner (1995) reported that annual turnover across the commercial banking sector as a whole was 22 percent in the United States compared to 7 percent in Germany, 8.4 percent in Japan, and 10 percent in France. As he found, German banks managed to retain their competitive appeal by offering their customers high level financial advising, quality service, and convenience of consolidating financial service products with one provider. All of these practices require highly trained people to accomplish (P.120).

In the fiercely competitive marketplace of the 1990s, too many companies are failing to understand that a business enterprise is not just a collection of assets and machines. It is a living human community (Fraser & Bollier, P.165). Besides the application of advanced technologies and more efficient operating systems, close attention must also be paid to the personal, emotional, and social well-being of employees, and to the organizational culture (Ibid. P.160). It is obvious that Stone Machinery needs to cultivate a healthy organizational culture.

Leadership

Being a Leader While Being a Manager

There are some differences on the term and definitions between leader and manager. Management and leadership are not synonymous (Deep, 1998, P.3). Simply put, from the terms, leaders lead people to achieve goals and managers manage people to reach the goals. However, in the real world, the differences are subtle in terms of functionality; and quite often, it is hard to distinguish managers from leaders or vice versa. The difference between managers and leaders is not so much in what they achieve as in how they achieve it. While both a manager and a leader might achieve the same goal, they will achieve it in different ways. Werther, Jr. (1989) defined the term of manager and leader: Leaders create a vision around which people rally; managers marshal the resources to achieve this vision (P.159). Deep (1998) differentiated the ways of managers and leaders to achieve goals as: Managers motivate with sticks and carrots; leaders motivate through ownership and inspiration. Managers focus on goals and schedules; leaders focus on vision and values. Managers reduce cost and minimize waste; leaders produce new ideas and maximize energy.

Managers focus on doing the thing right; leaders focus on doing the right thing. Managers leave a legacy measured in profitability and customer satisfaction; leaders add to that same legacy employee growth and satisfaction. If a company is lack or void of leadership, there will be some negative results:

1. Employees will work with their hands and their heads, but not necessarily with their hearts and their souls.
2. Activities will be fueled by projects and deadlines, rather than by dreams and vision.
3. Employees will act as exploited hired hands, rather than as partners in a common cause.

Therefore, when Stone's management works on improve the management, the leadership should be properly and adequately addressed. Stone needs a way to transform the managers into "catalytic" leaders capable of shaping a lackluster collection of wage earners into a supercharged team of achievers.

Effective Leadership

In order to achieve effective leadership, we must identify the attributes to such leadership. There are many things that can attribute to a successful effective leadership. Krueger (1994) generalized some

"common threads" of effective leadership. In his opinion, Goal Clarity, Energy and Drive, capitalizing upon strengths, augmenting weaknesses and an operating philosophy are the significant and reoccurring features which can be seen as "common threads" to the effective leadership. (p.24)

The essence of identifying the common threads is to know what is going to happen if such feature is not presented adequately. By using such "Threads", one can be more likely to achieve the effective leadership. These five listed "common threads" are actually the elements that are vital to successful leadership. In summary, in order to have effective leadership, the leader must have a clearly defined the goal and communicate the goal clearly to all the others who are involved; use whatever effective method to apply energy and activate drives toward the goals. In the course of reaching the goal, the successful leader should fully realize his/her strengths and weaknesses, and capitalize those strengths and minimize the weaknesses. Finally, a good operating philosophy will be a guidance for making daily judgements and decisions.

Leadership depends on the ability to frame issues correctly, which is to answer the question of what is

really going on? Leadership also depends on an ability to call forth authentic action in response to the issues it identifies. As Terry (1993) stated,

In this age when we face multitudinous local, national, and global challenges that inspire both hope and fear, we need more than ever to arrive at a comprehensive theory of leadership that is also a practical guide for leaders. We need to embrace many leadership perspectives in a new unity to use all our knowledge. And we need to face the true and real... this means that our leadership must provide authentic action". (P.15)

Leadership Styles

There are many different types of leadership or styles of leadership. With the regards of dealing with problems, we can categorize the leadership styles as reactive style and creative or proactive style. Oakley and Krug (1992) defined the reactive style leadership as those managers who deal with symptoms instead of uncovering the real cause of problems (P.175). The managers who are reactive leadership dominated tend to have a compelling desire to find and fix the immediately encountered problem. They are problem oriented. They act like the fire fighter. They think

that their sole job is just to put out the fire. On the other hand, the Creative Leaders tend to balance their focus on both solving the immediate problem and finding the cause of such problem so as to fix the problem from the root. As Oakley and Krug (1992) characterized, creative leaders focus on both the soft and hard issues. Quite often, the actual cause of problem is a soft issue. Creative Leaders very quickly move from a problem orientation to a solutions orientation. They know the importance of the team's mindset, and they understand the impact of their own actions and behaviors on this mindset and deal with it accordingly. Creative Leaders support alignment with a shared purpose or vision that nurtures ownership by team members.

Components of Leadership

Shipka (1997) identified eight elements as the basic components for successful leadership in today's challenging world. She called these elements as eight powers, which are already available to human beings. By further developing these eight powers, we can take more advantage of the fullness for which we are designed and draw on more of the potential naturally available to us. These eight powers are: Aliveness, Passion,

Integrity, Authenticity, Relatedness, Expression, Perspective, and Reverence (P.72).

The eight powers are divided into two groups. While all of them originated from within, the root of the first four powers is different from the second four. The first four are rooted in the internal conversation of us. They are Aliveness, Passion, Integrity, and Authenticity. These powers are our foundation. They provide and develop strength, purpose, clarity, and uniqueness (P.75). The second four powers are rooted in our interactions with all of life and the reality we witness outside of ourselves. They are: Relatedness, Expression, Perspective, and Reverence (P.119). These powers apply the meaning that we establish with the first four powers. They give voice and action to our strength, purpose, clarity, and uniqueness through association, imagination, expectation, and admiration.

All of these eight powers are very critical to the management success. However, none of them can be overly too strong without the same magnitude of the matching power. We need to balance them to bring the scales of the two powers into equilibrium with each

other. The researcher strongly believes that this theory is very useful in the practice of management.

Teamwork Challenge

Teamwork is vital to the success of any company of any size. Stone Machinery needs good teamwork to ensure success. Therefore, literatures regarding teamwork were reviewed. Any and every employee has some talent. The true leaders should realize that brilliant talent is meaningless unless the people who have that talent are molded in a unified force. One of the major works for a leader to ensure that teamwork is more than just a slogan is to let everyone control their ego. Teamwork has brought out many very successful results. Smith (1991) observed that Corning Glass took the bold step of organizing 70 percent of its twelve hundred scientists and engineers into quality work teams, an unheard-of notion in R&D. The results in the first four years included savings of more than \$21 million, faster new product creation, and a doubling of Corning's return on equity (P.158).

Davidow (1992) reported another example: by using teamwork, the General Mills cereal plant in Lodi, California, runs during the night shift with no

managers present; work teams at the plant have increased productivity 40 percent (P.199).

The Essential Elements of a Team

What are essential elements for forming a team? Cox (1990) believed that there are four preconditions for team effectiveness. They are:

Mutual need: People have to acknowledge that they need each other. Even so-called individual contributors take on tasks spawned by collaborations they're a part of. We take our first step toward effective teamwork when we say, "Hey folks, we need each other."

Joint commitment: Not only do we have to acknowledge that we need each other, which some people do with a sense of resignation, but we enliven our work with a proactive, affirmative linking of hands with those around us.

Declaration of purpose: This is the statement of the group's reason for being. This can be a set of objectives, the itemization of critical success factors, a mission statement, or some other articulation of its charter. Regardless of the form chosen, a group requires knowing why it has been assembled,

Accountability: There is a risk in group efforts that everyone is seen as responsible for a given task with the result that is adjourned; one person is given task with the result that on one is. Avoid this by making sure that before a meeting is adjourned, one person is given a "what-by when" assignment for each decision.

Finally, he summarized that the basic elements are: Inclusiveness, Directness, Engagement, Experimentation, Accountability, Sensitivity. (P.7)

Don't Limit People's Access to Information

Companies and Organizations have a right to protect proprietary information. But in a learning organization the "need to know" system can become a barrier to learning. In our information driven economy, competitive advantage can be found in only three areas - productivity, speed, and information or knowledge. When a team requires the information to get its job done, whether the information is state-of-the-art technological information or knowledge about the customers or the financial figures, the traditional security precautions often slow down the work process.

We need to facilitate information sharing between employees (Schmidt & Finnigan, P.133).

Self-managed Teams

The practice of running self-managed teams has been used for decades and produced many good results. Batt (1996) concluded that two decades of research in the organizational behavior provides considerable evidence that workers in self-managed teams enjoy greater autonomy and discretion, and this effect translates into intrinsic rewards and job satisfaction; teams also outperform traditionally supervised group in the majority of empirical studies. A study of implementation of teams in one regional Bell telephone operating company found that "self directed groups in customer services reported higher customer service quality and had 15.4percent higher monthly sales revenues." In the case of network technicians, the implementation of self-directed work teams saved "an average of \$52,000 in indirect labor costs for each self-directed team initiated." (P.344).

Self-managed teams positively affect the employee job satisfaction. In the same study, Batt (1996) found that more than 75 percent surveyed workers who

are currently in traditional work groups say that they would volunteer for teams if given the opportunity. By contrast, less than 10 percent who are now in teams say they would like to return to traditional supervision.

Pfeffer (1998) generalized the advantages of self-managed teams as:

1. Teams substitute peer-based for hierarchical control of work. Instead of the management devoting time and energy to controlling the workforce directly, workers control themselves. Peer control is frequently more effective than hierarchical supervision.
2. Teams permit employees to pool their ideas to come up with better and more creative solutions to problems. The idea, similar to brainstorming or group problem solving, involves pooling ideas and expertise to increase the likelihood that at least one member of the group will come up with a way of addressing the problem.
3. Most importantly, teams permit removal of layers of hierarchy and absorption of administrative tasks previously performed by specialists, avoiding the enormous cost of having people whose sole job is to watch people who watch other people do the work.

Example of Self-managed Team

Proctor & Gamble pioneered an approach "self-managed team concept". It is, as Heller (1995) pointed out, the relentless drive to make self-direction management reality. Because of using this self-managed team approach, Proctor & Gamble's strength springs not merely from its fabled marketing, but from the raw ability to out-innovate the competition, both with new products and through "cost advantages" won by the enormous productivity gains of self directed work. Its system gives people everywhere the control they need to feel being the best (P.25). The researcher determined to use the self-managed team method to run the daily operations.

Loyalty

There are two loyalties we are concerned with: the employees' loyalty to the company and the customers' loyalty to the products and services. A company, which has loyal employees, will most likely perform better and the better performance will make customers more loyal. However, as some experts proclaim, "Loyalty is dead". As Reichheld (1996) pointed out, the statistics show that on average the American companies now lose

half their customers in five years and half of their employees in four years. In Stone Machinery, there were six employees that left the company between 1994 and 1998. Five of the six were the service personnel. It is exactly the number of the percentage that the statistics showed. It makes people think that in the future the only business relationships will be opportunistic transactions between the virtual strangers. It is true that we are now living in a fast changing world. Sometimes, loyalty is seemed not very important and effective to the success of a business. Someone may be successful purely because of sheer chance. However, the reality is that disloyalty at current magnitude impedes corporate performance by 25-50 percent, sometimes even more (P.1).

By contrast, business that concentrate on finding and keeping good customers, productive employees, and supportive investors continue to generate superior results. Loyalty remains one of the great engines of business success. In fact, the principles of loyalty and the business strategy we call loyalty-based management are alive and well at the heart of every company with an enduring record of high productivity, solid profits, and steady expansion (Reichheld, P.1).

Implementation

Success comes from successfully implementing strategy, not just from having one. This implementation capability derives, in large measure, from the organization's people, how they are treated, their skills and competencies, and their efforts on behalf of the organization. Fixing an organization's management practices may be more difficult than readjusting the strategy, but the payoff is much greater. "Managers are always well-advised to solve the real problem - not the one they prefer to solve or are able to solve. This obvious recommendation is, unfortunately, all too often violated in practice." (Pfeffer, P.17-18)

Vision

What is a vision and why is it important? Block (1987) pointed out that creating a vision can force us to take a stand for a preferred future. It makes the entrepreneurial cycle work because it gives us something we are willing to risk for. The vision is also our way of discovering that serving the organization also serves our self-interest.

We give leadership when we create a vision that positions ourselves in relation to the customer and our own colleagues. Stone's vision channels our deepest values into the workplace and becomes a word picture of how we want our values to be lived out in our territory.

Concept of Self-Leadership

Today, with the fast pace changing of the world, many standard, traditional management practices, job descriptions, and career tracks are obsolete. In order to succeed, individuals, at every level, must reinvent themselves as their companies and institutions restructure the way they function. While there are many new theories on organizational management and team productivity, Waitley (1995) put emphasis of maximizing personal potential so as to "Re-engineering " themselves as well as their corporations. The name of this theory is "Self-Leadership". He thinks that in today's society, a "knowledge era", everyone must continuously update his/her knowledge to avoid being obsolete, and be the leader of yourself to excel to survive and succeed (P.8). Self-leadership advocates that one must accept responsibility for ones actions, but not the credit for ones achievement; learn from the

past mistakes, but not lean on the past successes; Human beings are the most valuable assets of a company (Waitley P.20). The only way to fully utilize people's potentials is to let them to be the leader of themselves. Stone needs to continuously focus on training its employees, not only on the technical aspects, but personal development as well.

Use PDCA (Plan-Do-Check-Act) as a Learning Tool

How an organization deals with problems - especially failures - says much about that organization's culture (Schmidt & Finnigan 1993). Deming (1986) stated one his key rules as:"Find problems. It is management's job to work continuously on the system." When we have a problem, we should always ask ourselves "What caused it" and "How can we avoid it in the future"? There is a distinctive difference here between the reactive managers and creative/proactive managers. The reactive managers will just simply solve the problem when it appears. The proactive managers will also try to find the cause of the problem and fix the causal problem as well. The core of PDCA is the "Check and Act". We should conduct a thorough study to find out all cause factors to make

a sound working plan; check the results frequently to evaluate the effectiveness of the plan and make corrections correspondingly. This practice should be conducted continuously as a cycle (Schmidt & Finnigan, P.131). The PDCA method will be used both during the problem solving project and daily quality improvement.

Problem-solving model

A step-by-step process for solving problems can make the problem solving quicker and better. There are many problem-solving models in use by different companies. Schmidt & Finnigan (1993) suggested a typical one that has six steps:

1. Identify and select a problem to solve.
2. Analyze the problem.
3. Generate potential solutions.
4. Select and plan a solution.
5. Implement the solution.
6. Evaluate the solution. (P.164)

This problem-solving model would be used throughout of this project in both macro and micro.

Summary of Literature Review

From the literature that was reviewed, it was determined that a customer survey was needed. The

structure and instrument of the survey were also determined based on the literature review. The survey questions were focusing on the customers' perceptions and expectations on Stone's service. These questions would include the timeliness of the service, the proficiency of the service, the appearance and professionalism of the service personnel, and the comparison with other machine tool service companies.

Based on the literature review, it was also determined to use team approach and TQM (Total Quality Management) method in the problem solving stage. From the reviewed literature, the researcher found that improving of the management of service operation and fully utilizing of human resource would be the major focus points to the improvement of service quality.

Chapter Three

Method of Research and Data Analysis

Introduction

The methods and procedures used in this investigation are explained in this Chapter. The investigation included a customer survey to find the customers' perception and expectation to Stone Machinery's service. The results of the survey were gathered and analyzed. A final analysis was done to identify the problems and generate the proposal for solving the problems.

Survey

A survey was conducted to identify customers' perception and expectation to Stone Machinery's service.

Sampling Method

The subjects of this survey were the customers who have bought machine(s) from Stone Machinery. A questionnaire was constructed by the researcher and owners of the company. The questionnaires were sent to every customer who has been on the file of Stone Machinery's customers' list (Named "MACHINESOLD" in the computer program ACT!) along with the invitation

letters for company's open house. The total number of customers of Stone Machinery was 509 at the time of survey.

Instrumentation

The instrument was designed to use Likert scale questions to obtain raw data regarding customers' perceptions on Stone's service quality and their expectations. Most of the questions have five choices. A score of 1 was assigned for the most negative answer and 5 for the most positive answer. Three questions were constructed as open-end questions. They were the questions regarding the time that customers waited for service and the time they expected to wait. The questions covered all service dimensions which pertained to the Stone's services. These questions included the timeliness, effectiveness, service personnel's attitude, professionalism, and quality of repairs performed. Demographic questions were not considered to be necessary because all customers of Stone are business entities. The survey included the question on customers' comparison between Stone Machinery and other machinery dealers. (See Appendix 1 and 2)

Administration of the Survey

The questionnaire was reviewed and approved by the president and vice president of the company. Before the questionnaires were distributed to the customers, a pilot test was conducted among Stone Machinery employees to test the validity of questions. Because of the size of the customers (509), Stone sent the survey to all of its customers before the open house.

Result of the survey

Out of the 509 questionnaires that had been sent, There were 421 returns. It composed a return rate of 82.7 percent. It was deemed as a valid survey. Each question's answer was tallied and the total scores were processed to obtain means and the ratio of each class of answers. The results were as follows:

1. The mean score of answers to the question of quality of the machines that Stone sold was 4.13. There were 421 answers to this question. Among which, 2 (0.5 percent) answered 'bad', 16 (3.8 percent) answered 'poor', 55 (13.1 percent) answered 'average', 199 (47.3 percent) answered

- 'good', and 149 (35.4 percent) answered 'excellent'.
2. The mean of installation score was 3.45. There were 421 answering this question. Among which, 3 (0.7 percent) rated 'bad', 43 (10.2 percent) rated 'poor', 164 (39.0 percent) rated 'average', 184 (43.7 percent) rated 'good', and 27 (6.4 percent) rated 'excellent'.
 3. There were 408 answering the question of usefulness of training. Among which, 5 (1.2 percent) rated 'bad', 32 (7.8 percent) rated 'poor', 203 (49.8 percent) rated 'average', 144 (35.3 percent) rated 'good', and 24 (5.9 percent) rated 'excellent'. The mean score was 3.37.
 4. There were 421 answering to the question of timeliness of response to service calls. Among which, 2 (0.5 percent) 'bad', 26 (6.2 percent) 'poor', 271 (64.4 percent) 'average', 109 (25.9 percent) 'good', and 13 (3.0 percent) 'excellent'. The mean score was 3.25.
 5. There were 395 answering the question of the effectiveness of trouble shoot. Among which, 1 (0.3 percent) 'bad', 17 (4.3 percent) 'poor', 192 (48.6 percent) 'average', 174 (44.0 percent)

- 'good', and 11 (2.8 percent) 'excellent'. The mean score was 3.45.
6. There were 421 answering the question of average call back time. Among which, 42 (10.0 percent) of 1 hour, 51 (12.1 percent) of 2 hours, 131 (31.0 percent) of 3 hours, 146 (34.0 percent) of 4 hours, and 51 (12.1 percent) of 5 hours. The mean was 3.27 Hours.
 7. There were 399 answering the question of the telephone help effectiveness. Among which, 3 (0.8 percent) 'bad', 8 (2.0 percent) 'poor', 169 (42.4 percent) 'average', 172 (43.1 percent) 'good', and 47 (11.8 percent) 'excellent'. The mean score was 3.43.
 8. There were 417 answering the question of timeliness of service call. Among which, 4 (1.0 percent) 'bad', 11 (2.6 percent) 'poor', 131 (31.4 percent) 'average', 146 (35.0 percent) 'good', and 125 (30.0 percent) 'excellent'. The mean score was 3.90.
 9. There were 421 answering the question of competence of engineers. Among which, 2 (0.5 percent) 'bad', 2 (0.5 percent) 'poor', 157 (37.3 percent) 'average', 189 (44.9 percent) 'good', and

- 71 (17 percent) 'excellent'. The mean was 3.77.
10. There were 421 answering the question of engineers' manner. Among which, 1 (0.2 percent) 'bad', 1 (0.2 percent) 'poor', 122 (30.0 percent) 'average', 152 (36.1 percent) 'good', and 144 (34.2 percent) 'excellent'. The mean score was 4.03.
 11. There were 403 answering the question of effectiveness of repair. Among which, 0 'bad', 2 (0.5 percent) 'poor', 128 (31.8 percent) 'average', 164 (40.7 percent) 'good', and 109 (27.0 percent) 'excellent'. The mean score was 3.94.
 12. There were 421 answering the question of average waiting time for service engineer showing up. This was an open ended question. The mean was 19.5 hours, and the median was 11.3 hours.
 13. There were 421 answering the question of average expectance of waiting time for service. This was an open ended questions. The mean was 8.2 hours and the median was 8.0 hours.
 14. There were 421 answering the question of rating Stone Machinery's service comparing with other companies. Among which, 5 (1.2 percent) 'bad', 57

(13.5 percent) 'poor', 235 (55.8 percent) 'average', 108 (25.7 percent) 'good', and 16 (3.8 percent) 'excellent'. The mean score was 3.18.

Survey Data Analysis and Discussions

From the result of the survey, the customers' perception on Stone Machinery's service was identified. There were 421 customers answering the question of rating Stone Machinery's service to compare with other machine tool companies. Among which, 5(1.2 percent) answered 'bad', 57(13.5 percent) answered 'poor', 235 (55.8 percent) answered 'average', 108 (25.7 percent) answered 'good' and 16 (3.8 percent) answered 'excellent'. The mean score was 3.18 in a 5-point scale. The score (3) represented 'average'. The majority (55.8 percent) of customers who answered this question rated Stone as 'average'. This data indicated that in the customers' opinions, the Stone's service was a little bit better than the average. However, only 25.7 percent of surveyed customers rated Stone's service as 'good', and 3.8 percent rated "excellent". This indicated that the customers expected better service. The company must provide better quality service to the customers in order to survive in the competition.

The mean score of the answers to the question of the quality of the machines that Stone sold was 4.13 with the majority (82.7 percent) either rated them as 'good' or 'excellent' (47.3 percent 'good', and 35.4 percent 'excellent'). This indicated that in the customers' opinion, the machines that Stone Machinery has sold were good products. The mean score of the answers to the question of competency of service personnel was 3.77, with a majority (44.9 percent) rated "good". The mean score of the answers to the question of the effectiveness of trouble shooting was 3.45, with a majority (92.6 percent total) rated 'average' and 'good' (48.6 percent 'average', and 44.0 percent 'excellent'). This data indicated that service personnel were fairly competent. The mean score of answers to the question on the manner of service personnel was 4.03, with a majority rating (36.1 percent) of 'good', and (34.2 percent) of 'excellent'. This showed that the service personnel held a fairly good manner.

However, the survey showed the customers expecting quicker response and better services. From the result of the survey, it was found that the average waiting

time for service was 19.5 hours; and the customers' expected (or accepted) waiting time was 8.2 hours. The mean score of the answers to the question of the timeliness of response to service calls was 3.25, with a majority (64.4 percent) of customers rated it as 'average'. Combining the data that had been gathered regarding the timeliness of service, the researcher found that Stone Machinery could not provide timely service to all of its customers with current staff.

In summary, the survey data analysis showed that the products that Stone Machinery sold were good machines to the customers. Mean while the service personnel had a fairly good manner and proficiency. The weakness of Stone Machinery's service was in providing timely services. The data that this survey gathered will be also used as a benchmark for measuring the improvement in the future.

Chapter Four

Conclusions and Recommendations

Based on the analysis of data, It was concluded that the major task of improving the service operations was to improve the timeliness of repair and the effectiveness of services. Fully utilizing the human resources was the key issue. The employers agreed that everyone has to make changes if both the employer and employees of Stone want to improve the performance of Stone's service department. Since the people are the most valuable assets, it was decided to fully utilize all the potential of all employees for solving problems and future development of the company. The team approach was used to enhance the problem solving. The following methods were recommended to improve the service performance.

Teamwork

Teamwork has proven to be a good approach for improving performance. Hence, here at Stone Machinery, the management activated every employee and employer as the member of the team. First of all, thorough discussions had been conducted to let everyone fully understand the necessity of carrying out such reform. Together, the team had many meetings for discussing the

problems and brain storming for the best solutions.

Since this is a problem-solving project, a systematic problem solving method is required. A step-by-step process for solving problems can make the problem solving quicker and better. The one we chose has six steps as follow:

1. Identify and select a problem to solve.
2. Analyze the problem.
3. Generate potential solutions.
4. Select and plan a solution.
5. Implement the solution.
6. Evaluate the solution.

The service department used this model through out the entire project. For example, when working on improving the responding time, the team members first discussed and identified the causes of delay in responding calls. The main cause of this problem was the effectiveness of service besides the travel time for out-of-state services. They then brain stormed and generated solutions, and selected the best solution. The solution then was implemented and evaluated during the implementation. Corrections were made to improve the results. This method was used for implementing the

project as a whole and solving each individual problem as well.

After having a series of group discussions, the team members agreed upon some goals that new services should achieve:

1. Fill those unfilled needs in service.
2. Overcome the disadvantages in the current services
3. Fill in the gaps in the current machine service market.
4. Create new formats of extensions of the existing service items.
5. Adopt and/or innovate new technologies.
6. Assimilate some successful ideas transferable from other markets.
7. Find more economic ways of satisfying extensively met needs.

In order to achieve those goals, the following questions were addressed:

All of the employees must be fully motivated in order to have the best performance out of them. How does the management motivate the employees? Stone is a small company. It can't afford a big overhead. How to satisfy the geographically

vastly scattered customers with limited human resources?

If the goal was to improve efficiency of service operations, how to let employees fully utilize their potentials to work for the good of both the company and themselves?

With many group studies on the subject of being competitive in the industry, the team members realized that it was impossible to achieve some lasting competitive advantage simply by making purchases in the open market- something that anyone can do. Company needs an "edge" to beat the competitors. But the "edge" cannot be the one that is readily available on the counter from the market. If anyone can get from the counter then there is no "edge". The team members agreed that they had to be innovative and creative to provide new features of services to our customers. Stone Machinery will find the "edge" from its employees. In the meantime the management needed to address the issues of motivation, envision, and empowering the employees; developing incentive plans; and negotiating with manufacturers to get better package deals.

Proposed Solutions

Upon group meetings, the results of the survey were studied. All of the company's strength and weakness were carefully analyzed. The team members mutually agreed upon some areas as the major problem that they need to work on. Some solutions for improving the performance of the service operations were made afterwards. These solutions were focused on solving the problems found from the customer survey. Particularly, the solutions would focus on improving the timeliness of repair and the quality of repair.

Mission Statement

A mission statement is not just a formality. It is a declaration of the goal to be achieved. A company or an individual should have a mission. A clearly defined mission statement can produce a better awareness of such mission. Together, the team members developed the mission statement for Stone's service department.

Mission of Stone Machinery's Service Department

The mission of our Service Department is to provide all of our customers the best quality and prompt services. Our goal is to let the machines we sell be in the best condition with the least down time.

Customer satisfaction is our first priority. In the meantime, we strive for the best economic result as achieving the highest efficiency and being financially self-reliance.

Vision Statement

The team members also realized the importance of a clearly defined vision to their department. This was their perception and anticipation to the development and future of their department.

Vision of our Service Department

We foresee a great and prosperous future of our department as well as our company as whole. Machine tools are facing some revolutionary development. We have chosen the best product lines to represent; we have had a huge demand; and we have had the best quality personnel for service operations. We will be the best service department of the trade with all efforts of all teammates and the application of State-of-the-Art technologies.

Implementing quality management in services

Continuous improvement of service performance and service products has been a quality management approach pursued by many companies. Upon discussions, the team members all agreed that the only way to satisfy

customers is to provide consistent good quality services and implementing quality management is the key to the success.

Benchmarking

Benchmarking is an effective approach of Total Quality Management (TQM). It is used to guide the improvement process by determining the most important things to improve and the best approach for doing so.

For benchmarking, the department needed to plan a study to determine what to benchmark and what are the customers' needs. It needed to find the best practices around, analyze the gaps on its performance, and adapt superior practices to Stone's culture. Because at the time there was no service standards regarding the machine tool repair, the team decided to use the result of the survey as the benchmark. The service department established some standards of its own for certain particular items. Some standards were as follows:

Stone Machinery will have a service engineer answer the customer's call within one hour after the customer called for service.

Stone will dispatch a service engineer to the site within 12 hours.

An installation will be done professionally as soon as the machine is delivered and utilities are available.

A second trip for solving the same problem is not acceptable. The cause of the second trip should be reviewed thoroughly and corrective actions should be taken to prevent similar incidents happening again.

Changes in Management

Entrustment

People are the greatest assets of the company. There is a difference between works done with or without heart. It will be impossible for employees to work with their full hearts without being fully trusted. The management decided that the service engineers will have full authority to determine which operation they should do and how it is done. They will be fully responsible and accountable for the decision made. In the meantime they should consult with the service manager and keep the communication line open all the time.

Competitive salary

The level of salaries sends a strong message to the company's work force - they are truly valued or

they are not. The salary must be competitive and decent enough to show the employees that they are decently valued and respected. It has been mutually agreed between the owners and management that Stone Machinery's service engineers' salaries must be competitive with the competitors' in the trade of this area. This might mean a little increase in the payroll, however, the return would be justifiable in the long run.

Improve Communication

Communication is vitally important to the successful running of the service operation. It was the weak point in the past. Even though almost everyone cited the importance of communication, many failed to keep the line open. This includes the employers and management. It was decided that the management would do more work and pay more attention to communication with the employees. Because the moving nature of the service engineers, each engineer should have a cellular phone to get them in touch with the office and each other.

Regionalize the Service

Because of the vast area that Stone Machinery's service has covered, and also because of the increase

of the numbers of the customers in other States, it is wiser to hire a local service engineer to cover that area. It can save a lot of time for service engineers in the Twin Cities area to travel to places hundreds miles away. They can be hired on a contract basis or full-time. However, as experiences showed, contracting is not reliable to provide satisfactory and timely services due to the lack of commitment from the contractor. As a result of this proposal, a service engineer was hired in Waterloo, Iowa. He would be responsible for the service calls in the Iowa area after completion of training. This would significantly reduce the travel time of service engineers in the Minneapolis home base and shorten the waiting time to those customers in Iowa.

Extensive Training

In order to make the service personnel competent to do professional repair works, extensive and comprehensive training is required. Machine repair is a complex and complicated profession. It requires a wide knowledge in mechanical, electrical, electronics, and computer in general, and the particular machines in specific. It was determined that the service department would conduct regular training courses. The

training would include training in the manufacturers facilities and Stone's own training. Stone would send its service personnel to the manufacturers periodically to update their knowledge on the products. Employees were also encouraged to share their knowledge to each other.

Comprehensive Incentive Plan

Service personnel work in a very harsh situation. They often need to work more than eight hours a day. They often have to drive hours to get to the place to work. The average daily working hours are 11 hours plus. The average monthly mileage of travel is about 2500 miles. Each individual has some family matters to take care of. They often have to sacrifice their own interest to fulfill the job. Therefore, a good incentive plan should be developed to compensate the service engineers' extra efforts and encourage them to work better. A gesture of appreciation from the owners and management is also very useful and seemed to be mandatory.

Open-book Policy

From the other company's experience, it is apparent that it is good to let the employees know what is going on in the finance area. The employers of

Stone Machinery have the goal of letting the service department be financially self-sufficient. The service personnel also have the determination of making the service operations profitable. Therefore, it is better to open the monthly financial statement of the service department to the service personnel. Combined with the incentive plan, the employees will be more motivated and deem the company's performance more personally related.

Fully Utilize all Modern Technologies

In order to keep up with the fast pace of market changes and to efficiently provide effective services, Stone Machinery must fully use all the new technologies available. There are two main areas: 1) fully use the potentials of PC computers, multimedia technology, and Internet; 2) stream line the documentation producing process.

Fully Use Computer's Database for Service

The company has many computers. Almost everyone has a computer, either a desktop or laptop or both. Most of the desktop computers inside the office have been hooked up in a network using Windows Workgroup. Programs and data can be shared between computers so as the departments. However, the service information had

not yet been integrated into the main computer database file. The company has a database of all customers. The software that the Stone has been using is the ACT! 3.0 for Windows. It is a very powerful Personal Information Management (PIM) software in many people's opinion. However, the way it has so far been used, it was only sales oriented not for after-sales service.

On this program, we have had all the information about every customer including name, address, contact, machine sold, serial number, etc.. However, there was no record and field regarding the machines' repair history. The service report sheets were only to be filed by the service personnel as paper documents. It was mainly used for accounting and billing purpose. The Service Department did have one copy kept as record. However, it took a big space for paper documents storage. Some records may be lost or misplaced over time. Also, finding information through piles of old paper is time consuming. Because the reports were written on the paper sheets, the data won't be input to the computer database automatically.

Data entry afterwards will consume extra time and energy. Stone, as a small company, often needed extra manpower. It was obvious that Stone Machinery needs

computer-generated report sheet, which upon completing, all data will be entered and stored into the company's database. All it needs is downloading the report to the main computer when the service personnel come back to the office or transmit the information through wire.

By doing so, all information regarding this particular repair on this machine will be available when the billing process starts.

Generating Computerized Service Report Form

The common way to computerize the data processing is to use a database software. There are many popular database software such as Debase IV. or Paradox IV. They are general-purpose data base software that can give you more freedom to customize them to a dedicated program to meet your need. However, the owner of Stone prefers using ACT!, because of his sales orientation and his familiarity to the ACT!. By thoroughly study the ACT! software, the researcher found that, still, the ACT! can be tailored to meet our needs with some exploration. We decided to use ACT! and fully explore its features to meet our purpose.

Current usage of ACT!

The ACT! is basically a database software. It is a tailored database software. It is designed for

"contact management". Stone Machinery chooses to use it as the company's database software because the owner has been using it for sales contacts' information management. Mainly, the use of the program is using the customers' information stored in two files: STONEMAIN and MACHINESOLD. The STONEMAIN file contains all customers and prospects. The MACHINESOLD file contains all customers who have bought machines from Stone and their machines. It is actually the database of all machines sold. Sales personnel use the program for planning and scheduling their activities. The service people mainly would only use it to find the customer's place, machine serial number, and date of installation (for warranty purposes).

Explore the ACT!

The ACT! has many functions and features that we have not yet fully utilized. ACT! has a feature of "Group". It can segregate the information into groups for better management. The groups can be further divided into subgroups. To suit the service department's needs, the researcher added one group in the file of "MACHINESOLD". He named the group as "SERVICE". It contains all data entries regarding the service performed. The data includes all of the

information usually found on the service report sheet. The information can be used to generate service report and invoice. With this new system, when a customer calls for service, the order taker (either a secretary or a service personnel) can pull out the file of the customer and enter the data of the order to initiate the job order (create a new item in the job order list in computer file). A service report form will be generated with a customer's information. When the job is finished, the service engineer will complete the form on site and obtain the signature of the customer. Upon returning to the office, the service engineer can enter the data regarding the job performed into the computer and an invoice can be generated afterwards. A weekly or monthly service report can be generated very easily. A better and ideal method is using a hand writing recognition device (such as the one used by UPS and in Best Buy stores). This device can obtain the customer's signature electronically. By combining this device with a digital data wireless phone service, a service report can be generated on the site and displayed to the customer. The report can be transmitted back to the office once the customer's signature is obtained electronically. However, the

cost of the equipment is too high for a small company
at this time.

Architecture of New Database

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ACT! (Program)
  FILE: STONEMAIN
    RECORD (1, 2, 3, 4, 5, 6, 7, 8, 9, ...)
      FIELD: Company Name
      FIELD: Address1: Street Name
      FIELD: Address2: City
      FIELD: Address3: State
      FIELD: Address4: ZIP
      FIELD: Phone Number
      FIELD: FAX Number
      FIELD: INTERNET Address
      FIELD: Contact
      FIELD: Title
      FIELD: Salutation
      FIELD: Nature of Work
      FIELD: Sales Status
  FILE: MACHINESOLD
    RECORD (1, 2, 3, 4, 5, 6, 7, 8, 9, ...)
      FIELD: Machine Made
      FIELD: Model
      FIELD: Serial Number
      FIELD: Date of Purchase
      FIELD: Date of installation
      FIELD: Purchase Order Number
      FIELD: Link to RECORD # in
STONEMAIN
      FIELD: Warranty Status (Auto)
  GROUP: SERVICE
    FIELD: Service Number (Auto)
    FIELD: Purchase order number
    FIELD: Name of contact
    FIELD: Name of order taker
    FIELD: Name of service engineer
    FIELD: Problem description
    FIELD: Date of service started
    FIELD: Date of service finished
    FIELD: Description of service
    performed
    FIELD: Hours of labor
    FIELD: Hours of travel
    FIELD: Parts
    FIELD: Parts
    FIELD: Miscellaneous
    FIELD: Warranty status (Determined)
    FIELD: Service category
    FIELD: NOTE

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Integrate all Technical Information to Computer

The technical documents of machines in paper form and the paper catalogs of supplies occupies a large space and weighs a lot. They are also easily ruined, especially the thick ones. It has been a big burden to the service engineers when they are going out for a period of time because they have to carry all the books and manuals just in case. Still, from time to time, the very needed page of information cannot be found.

Today, high quality, high-resolution scanner, high capacity storage, CD-ROM, and CD-ROM Writer are available at very reasonable prices. We can scan all the tech sheets and diagrams and store them into CD-ROM. The field engineers can just carry several CD-ROM's (for different brand/model) along with his laptop computer. Some machine tool builders (such as Hurco) have just released their technical information in CD-ROM form recently with the same idea. This method will make the trouble shooting and parts ordering much quicker. It is foreseeable that very soon, we can have an interactive manual to assist the field engineers finding and solving problems. For the time being, we scan all technical documents by using a

Visioneer scanner with 600 DPI resolution. The graphic portion of data such as the drawings and schematics are stored in BMP format (bitmap). Using the software feature of OCR (Optical Character Recognition), we scan and store the text files. Finally, all files are burned into a CD-R. The files can be read by using a word processor such as Windows Words.

In summery, the proposal developed by the team addressed the problems of timeliness of repair and quality of services, which were identified by the survey. Action plan and implementation plan were included in the proposal. The proposal was submitted to the employers and approved by them.

Conclusion

The implementation of the action plan has just started, yet it has already showed some improvement especially in the enhancement of morale of the employees. All employees are more enthusiastic in fulfilling the daily works. Some new features have been created such as the providing of preventive maintenance. The overall performance has been improved. The long-term effect cannot be determined until later though. In the meantime, progress

monitoring is underway. A follow up survey will be conducted during the next open house time. Performance improvement and enhancement is an on-going process. Continuous evaluations and modifications are required to make it really work. The greatest thing is that the employees are motivated so we will be moving to the future.

Appendix I

Dear Customer:

Thank you for choosing Stone Machinery to fill your needs in machine tools. We are greatly honored to have you as one of our most important and favorite patrons. We are determined to strive to provide the best machines and best service to you.

In order to achieve these goals, we would like to hear from you, our customer about us. We would like to know your comments and opinions regarding our service.

Attached please find the questionnaire which will take just couple of minutes to fill out. However, it will be a very critical tool to us for improving our services. We would appreciate if you could spare a little bit of your valuable time to answer the questions and return it to us with the enclosed envelope. Once again, thanks for your time and your business.

Sincerely yours,

Service Manager

Stone Machinery

Appendix II**Questionnaire**

On a scale of one to five, which the score one is 'bad', two is 'poor', three is 'average', four is 'good', and five is 'excellent'. Please give your answers to the following questions.

1. The quality of the machine(s) we sold is (____)
2. In your opinion, the installation of machine(s) by our service engineer is done correctly and properly? (____)
3. The usefulness of training you received on how to run the machine after the installation is (____)
4. When you had questions regarding the machine, the timeliness of response of our service engineer answering your call is (____)
5. The effectiveness of our engineer in trouble-shoot is (____)
6. How long did you have to wait to get service engineer call back if you could not reach him the first time? 1 Hour, 2 Hour, 3 Hours, 4 Hours, More
7. Could you get helped out by phone most of the time? (____)
8. If our service engineer can not solve your problem by phone, could he come to your shop timely? (____)
9. In your opinion, the competence level of our engineer solving problem and repairing the machine is (____)
10. Was our service engineer polite and courteous to you? (____)
11. Was the repair done effectively and professionally? (____)

12. Usually how long did you have to wait until service engineer showing up? In () hours
13. Realistically, how long do you expect to wait to see the service engineer show up? In () hours
14. What do you rate the service of Stone Machinery comparing with others? ()

You can use the space below to write your comments if the above questions are not covered. Also, you can give us your company's name if you want some answer from us. Once again, thank you very much for your time.

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