

# Seeking for a Goldmine through Total Quality Management and Market Survey



ISBN: 978-81-924713-8-9

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*Quality gurus such as Anil Ambani, Ratan Tata and much more expertise have advocated various methodologies for business success and single out some quality practices. These practices have a positive impact on business performance in both manufacturing and service sectors. This paper attempts to identify the TQM practices in two different sectors and examines the difference between them by analyzing their commonalities with respect to their implementation as applicable to both the sectors. The methodology adopted was critically examining the literature on TQM practices followed by manufacturing and identifying the competitors. For a successful development of a company to get well recognized, the prior step involves in identifying where we are standing comparatively to that of the competitor. This paper also deals with how to manage a level of commitment that must be maintained throughout the industrial or communal sector so as to find the chances to enhance in each and every aspect with that of our competitors. The results can provide guidance for service managers and quality practitioners aiming to implement TQM. Further, some survey strategies, managerial implications and future scope of this study are also prepared at the end.*

## 1. Introduction

The Industrial development and strength of any industry depends primarily on the proper application of quality management systems in all productive stages of industrial products. Many companies promote quality as the central customer value and consider it to be a critical success factor for achieving competitiveness. Because of huge competition, market globalization, and public demand, it has become necessary for managers, engineers, crews, and other employees to know not only the methods of controlling the quality of products but also to know how to improve quality continuously through market surveys. In Malaysia, most organizations have started to consider quality as an essential part of their business plan in order to meet the challenges of the new global environment. Among all quality practices, increasingly organizations have focused on total quality management (TQM). According to Dean and Bowen (1994), the recognition of TQM as a source of competitive advantage has been widely promoted around the world. TQM has also been conceived by Escrig-Tena (2004) as the most global and advanced approach in the area of quality. With TQM's main objective being to establish a management system and corporate culture to ensure that customer satisfaction is enhanced, which involves a systematic method for continuous improvement of organizational processes, resulting in high quality products and services (Waldman, 1994), quality systems like TQM could also lead to better service quality and organizational performance (Cook and Verma, 2002). Meeting customer needs still remains economically competitive although automated processes can make good breakthrough. Service industries by and large are still labor-intensive, and there can be no substitute for high-quality personal interaction between service employees and customers. Huge expenditure of time, money, and resources (both human and material) are wasted each year because of inefficient or nonexistent quality management systems (QMS). Implementation of Total quality management (TQM) system within the manufacturing companies might result in better customer satisfaction, increase profit and decrease failure of the companies.

Implementation of TQM is a management decision that requires many considerations such as company's operations, strategy, staff and customers. It has been shown that a commitment to TQM is essential for industry's top management to floor level employees to compete against competitors. There is a need for properly documented study and project survey on how TQM can be properly implemented in manufacturing companies to find out the level of awareness of these companies in conducting TQM. Understanding the tools and techniques of TQM is considered to be significant in order to get useful results. A better understanding is required to investigate the current status of TQM implementation.

The objective of this study is to investigate the current level of implementation, prospects and barriers in implementing TQM in market surveys within the equipment manufacturing industries. A survey questionnaire was developed and distributed to different equipment manufacturing industries. This research article presents the survey result on current quality control practices within the manufacturing companies in order to improve the customer satisfactions through employee participation and continual improvement process.

Section 1 of this paper discusses the significance of implementation total quality management system.

Section 2 defines the market survey development ideas.

Methodology of combining these two sectors of TQM and market survey technique is described in the Section 3.

### Definition and concept of TQM

TQM has been presented by many definitions over the years. TQM is a way of thinking that becomes a centre piece of an organization. It is defined as a management tool, philosophy and a set of principles which guides every member of organization who involved in the continuous improvement process to meet customer satisfaction. The TQM concept requires an effective involvement of all members of organization in decision making because their participation and contribution are considered as critical role in all business activities for providing services to customers with high quality products. However, there is no standard method as to how TQM should be implemented. The organization committed to customer satisfaction through continuous improvement varies from organization to organization and also from country to country, but it has common principles that can be applied to secure market share, increase profits and reduce costs. In brief, TQM is the management of quality throughout all members of organization. The organization must satisfy internal and external customer needs and then use strategic planning including all functional areas to achieve strategic goals.

The key idea of TQM is that quality control must be an integral part of the production process. It includes continuous improvement to remove waste, doing things right first time (removing the need for inspection), and quantitative measurement to analyze deviations from quality. The purpose is to reduce costs by preventing unnecessary rework jobs and to confirm customer needs by satisfying expectations of high quality

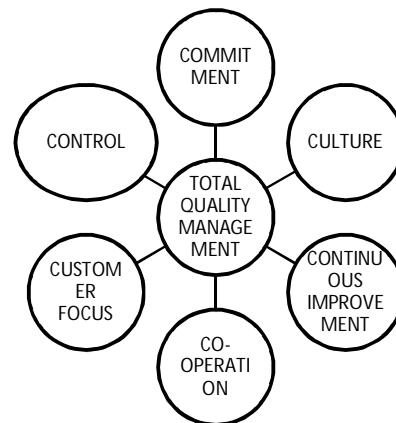


Figure 1 6 C's Of Total Quality Management

### Market survey

Market research describes the gathering and analysis of market data, such as consumer preferences, trends in market prices and the presence of competing products. A market survey can describe any study that gathers information directly from consumers by asking questions about their preferences, habits and experiences. The purpose of a market survey is to provide business managers with insight about their target customers, such as how much money they spend on certain types of products, whether they use competing products and the interest level for new products.

Market surveys can be administered in several ways. Paper surveys or questionnaires that businesses hand out in public or mail to consumers are common forms of market surveys. Businesses such as restaurants and service companies often use questionnaires to gather feedback about consumer experience. Some businesses conduct oral market surveys over the phone, while others conduct surveys electronically via email, on official websites or through third-party websites dedicated to market surveys.

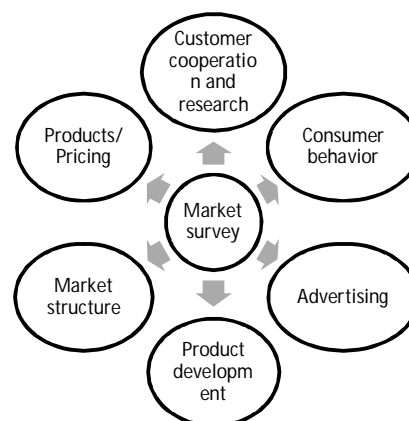


Figure: 2 Market survey Circle

### Equipment Manufacturing Industries - Scenario

Indian equipment manufacturing industry is successfully competing in the global marketplace and registering high growth on YoY (year-on-year) basis, but large sections of equipment manufacturing sector still suffers from bottlenecks like-

- Use of primitive technology or under utilization of technology.
- Poor infrastructure.
- Over staffed operations.
- Expensive financing and bureaucracy.

Further, this manufacturing sector must focus on areas like improving the urban infrastructure, ensuring fair competition and access to markets, reduction of import duties, quality improvements in vocational and higher education, increased investment in R&D and support of SMEs. Government leaders, experts and researchers are focusing towards a sustained growth, which contributes significantly to GDP growth, employment generation and overall economic development. It is also aiming to identify factors hampering industrial growth and seeks to redress these factors

The major factors constraining growth of equipment manufacturing are well-documented - poor core infrastructure, lethargic bureaucracy; high cost of capital, an agonizing land acquisition process and labor issues. An earlier initiative to further manufacturing growth by setting up of SEZs met with limited success. This was due to deficient land acquisition reforms, and lack of power and logistics infrastructure. The services sector including IT/ITES, already on a healthy growth trajectory, was the only real beneficiary of SEZs.

The need to raise the global competitiveness of the Equipment manufacturing sector is a key imperative for the country's long-term growth. The National Manufacturing Policy (NMP) is by far the most comprehensive and significant policy initiative taken by the government. While the task is difficult, the introduction of the NMP is definitely a step in the right direction. As history reminds us, intention alone will come to nought without proper implementation. This policy to correct decades of inaction must not meet the same fate as earlier ones.

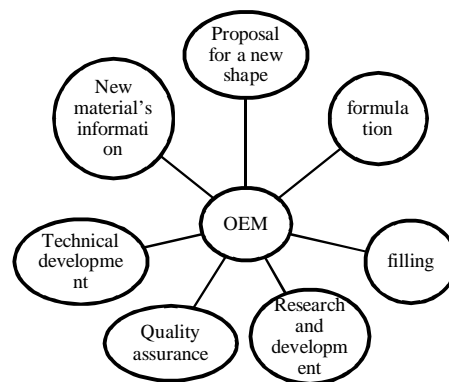


Figure: 3 Original Equipment Manufacturing Circle

## 2. Implementation of Market Research

### Prime Steps

- **The first and the foremost step involves in the determination and defining the nature, extent, and the size of your market.**

Before conducting a survey in a given market, you need to know what market we are targeting. Choosing the geographic and demographic parameters, identifying the customers by types of product, and getting an idea of how many people here are in the market, will enable you to get an overall idea of survey analysis.

Narrow your market research to a short list of desired data: buying habits, for example, or average income.

- **Find out where and when you can reach customers in your market.**

We might conduct a survey at the mall or on the street, via telephone, online, or through the mail. Your results may change based on the time of day and year. Choosing a method and time that best suits your research should be the valued parameter.

- **Choose a sample size.**

Your sample size should be as large as possible to maximize the accuracy of your results. You may want to create sub-samples—e.g., "males," "18-24 year-olds," etc.—to decrease the risk of biasing your results towards certain types of people.

- **Prepare a list of Questions with Answers that will Provide the Data you need for your Market Research.**

Your questions should be pointed and specific. Craft questions with answers you can predict.

- **Devise a Way to Quantify the Answers We Receive.**

If you are asking about preferences, you may want to ask respondents to rank their feelings numerically or using keywords. If you are asking about money, using ranges of values will help. If your answers will be descriptive, decide how to group these responses after the survey is complete so that they can be grouped in categories.

- Identify variables that might affect your results (usually characteristics of people who are more likely to answer surveys) and figure out how to reduce their influence.
- Set a time period and location for your survey that is likely to result in the largest sample size.
- Prepare your survey forms.
- Conduct your survey, maximizing sample size and accuracy of responses.

### 3. Human Resource Management for Market Surveys

A universal concern for manufacturers is enhancing labor productivity, ensuring sustained availability of skilled and highly qualified workforce, resolving labor disputes during closures or bankruptcy and managing rigid and archaic labor laws. These are impediments in attracting investments. The ultimate destiny of attaining the total quality management in the sector of market survey much relies with the hands of young minds and energetic workforces like students, who have the capability to endure to the utmost research sector thereby ensuring a sustainable growth to this equipment manufacturing industries. The listed below are the benefits for these young work forces.

- First-hand experience working as an engineering professional,
- Applying their technical knowledge and engineering methods to real-life situations.
- Work with other engineering professionals.
- Experience what it's like to work in a professional organization.
- Increase their technical, interpersonal and communication skills, both oral and written.
- Observe interactions of engineers with other professional groups.
- Witness the functioning and organization of business and companies.

#### Working at Best Practice

Employers should implement best practice when it comes to employing young workers for a variety of reasons. First, young workers can be a vulnerable section of the workforce and deserve particular protection. Your guidance and support for young employees can shape their attitude to work and their futures.

Second, young workers can become loyal and valuable employees who will form the basis of a company's future. They can also bring new enthusiasm and ideas to your business.

Third, by implementing best practice, employers improve their chances of recruiting and retaining quality young workers. On the flip side, poor treatment of young workers can give your business a bad reputation in the marketplace, which is something that all sensible employers want to avoid.

This best practice guide explains:

- What an employer should tell a young worker early in the employment relationship
- The particular importance of health and safety issues when it comes to young workers
- The options for apprenticeships and training
- Performance management of young workers.
- To work according to the principles of Total Quality Management of that particular industry.

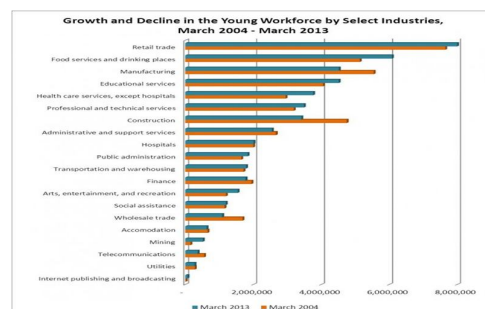


Figure4 Young Workforce Population Chart (In Selected Industries)

### 4. Survey Techniques

Tools for planning research efforts, and collecting and analyzing qualitative data are limited in marketing research. Two problems arise from this limitation. First, plans for collecting data are often under- or improperly-focused because the objectives of the research effort are not clearly specified. Second, researchers are often left with unstructured processes for analyzing the data generated from interviews or focus groups. Thus, tools that can help marketing researchers to plan their research efforts, and help to structure and analyze qualitative data would be useful. Marketing researchers rarely explore

problems that are "neat and clean." While clients may think they know what information they need, they may not be able to clearly specify their "decision problem." Thus, they may ask for information which they believe will be useful, only to later find out that the study did not tell them what they needed to know. Because the research problem is not clearly specified, it is unlikely that useful data will be collected. Research problems remain unclear because there are no systematic means for framing them. An analogous gap emerges in the process of analyzing qualitative, verbal response data. The marketing research field has few, if any, tools that a researcher can employ to systematically analyze collected data. In both of these preceding cases, one must have a means of *organizing and assessing verbal information*. Managers (i.e., clients) verbalize the issues that they believe they are facing, and the marketing researcher must then formulate a research program. Similarly, customers may (for example) present their verbalizations regarding a new product concept, yet the researcher must then study this verbal data and draw useful conclusions from it. Unfortunately, marketing research lacks tools that can be used for organizing and analyzing verbal data.

#### Don'ts of Conducting a Market Survey

- Do not be prejudiced. As an entrepreneur, you must be open-minded and confident.
- Do not be impatient or argumentative. Your objective is to get information.
- Do not reveal privileged information to others, for you may lose the trust of your sources.
- Avoid taking notes while discussing. Make notes immediately after an interview. People are not comfortable if one writes while talking.
- Don't interview without preparation and sequencing of questions. Ensure that the interviewee has time for you
- Don't approach competitors as "likely competitors" but meet them as "potential clients" to get the best results

#### Detecting the Gold Mine

Based on the existing information, it must be checked if the problem can be defined or narrowed down. Further, with this as your basis, write down "terms of reference" for any subsequent study. There are several ways of looking at the problems from different angles; some may be from your own point of view as a producer or a seller, customers/consumers' view point as buyer and end user of products/services, competitors' viewpoint for they may have addressed similar problems. Trying to prepare the schedule in as simple and clear form should be enabled and implemented and you should try to maintain a tight control on the subject. If other subjects surface during the research, give them the attention they deserve.

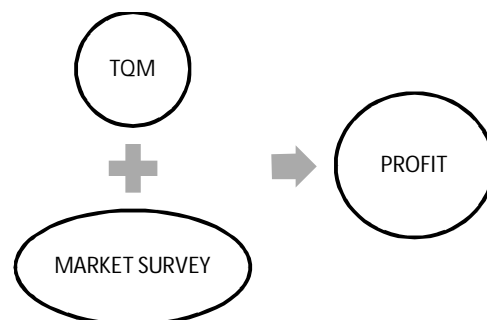
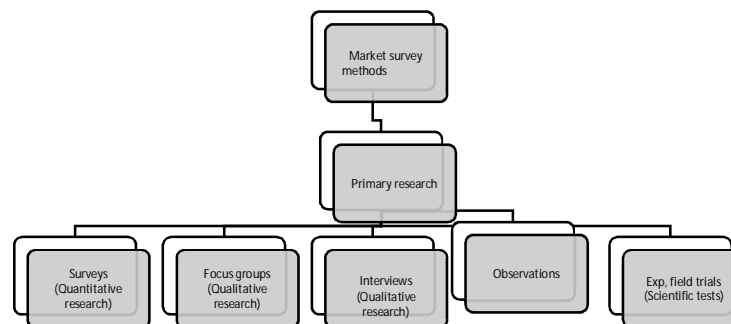


Figure 5 Resultant of the Combination of TQM and MARKET



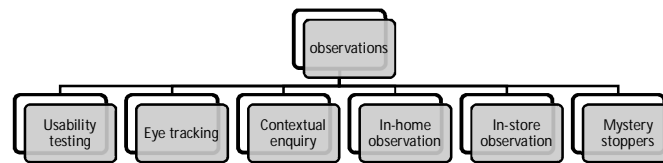


Figure 5 Surveying Methodology

### Primary Market Research Method #1 – Surveys

Surveys come in a wide variety of shapes and sizes, from that little “feedback card” on the table at your favorite restaurant to those never-ending web surveys that make you want to punch your computer.

Surveys make a lot of sense when the following conditions are true:

- You want to measure something objectively (or quantitatively).
- You have something specific to measure. In other words, you are beyond the exploratory portion of your research and you now want to test more specific questions.
- You have the resources (time and money) to conduct a survey.

Conversely, surveys are not a great research tool when:

- You are still exploring your topic. In this case, you don’t know the right (specific) questions to ask in a survey. Instead, you might conduct a focus group to get a better understanding of the topic. Here is an example: Let’s say you want to make and sell a better mousetrap. Instead of using a survey to ask people what color they prefer, you might want to hold a focus group with people who have mice problems and ask them open-ended questions about what they value in mouse control devices. You might hear things like “doesn’t kill mouse,” “easy to set,” “small size,” “price,” “disposable,” etc. Now that you have explored the topic and discovered these attributes, you can then measure their relative importance with survey devices.
- You don’t have the luxury of time and/or money to run a survey.
- Your available audience is too small (for now, let’s define “too small” very simply as less than 30 people).

Surveys can be used effectively for satisfaction research (customers or employee), measuring attitudes, pricing research, fact gathering (e.g. the census), and much more. You’ll find surveys administered in all sorts of ways, including snail mail form, web forms, face-to-face, over the phone, on the sidebar of a blog, and even on mobile devices via text message or otherwise. Surveys can be self-administered (the respondent reads and answers questions alone) or they can be administered by a person who records your answers.

### Primary Market Research Method #2 – Focus Groups

Focus groups involve getting a group of people together in a room (usually physically, although technology is making virtual, or online focus groups more feasible). These people fit a target demographic (e.g. “mothers under 40 with an income over \$50k”, “college males who play 8 or more hours of video games a week”, etc.) depending on the product or service in question. Participants are almost always compensated in some way, whether it is a money, coupons, free products, etc. A moderator will guide the discussion, with a goal of getting participants to discuss the topic among them, bouncing thoughts off of one another in a natural group setting. Professional focus group rooms will have a one-way mirror on one wall, with a team of observers on the other side. The company or group that commissioned the study can sit-in on the meeting, along with members of the research team who can take notes without disrupting the participants.

Focus groups are excellent for exploratory, qualitative research. In the “new mouse trap” example, a focus group can reveal all sorts of important mouse trap attributes that might not have been considered otherwise. Focus groups are great tools to use prior to a survey, because it will inform your survey questions to be more specific and targeted. Focus groups can also be beneficial after a survey, as a way to dive very deep into a topic that came up in the survey. For example, an employee satisfaction survey may reveal “cafeteria food” to be a big issue. A follow up focus group with a handful of employees will allow the employer to understand that issue much better (What is the problem with the food? Is it the taste, price, healthiness, temperature, something else?).

### Primary Market Research Method #3 – Interviews

Like focus groups, individual interviews are a qualitative market research method. To simplify things, think of individual interviews as focus groups with only one participant and one moderator (interviewer). There is a wide spectrum of interviewing formats, depending on the goal of the interview. Interviews can be free flowing conversations that are loosely constrained to a general topic of interest, or they might be highly structured, with very specific questions and/or activities

(e.g. projective techniques such as word association, fill in the blank, etc.) for the subject. Like focus groups, interviews are useful for exploratory research. Use this market research method when you are interested in digging into a specific issue very deeply, searching for customer problems, understanding psychological motivations and underlying perceptions, etc.

#### **Primary Market Research Method #4 – Experiments and Field Trials**

Experiments and field trials involve scientific testing, where specific variables and hypotheses can be tested. These tests can be conducted in controlled environments or out in the field (natural settings). This form of market research is always quantitative in nature. Experiments and field trials can be a hairy topic with lots of jargon, but here's a simple example that demonstrates an effective online experiment: In his first presidential campaign, Obama used "A/B testing" to optimize his campaign donation page. Some website visitors would see one image and others (at random) would see a different image.

The webpage team was able to measure which image was resulting in more donations, and they could quickly decide to use the more favorable image for all users. By employing this simple market research experiment on which website images performed better, Obama was able to maximize contributions in a major way. Another example might be a cereal company making two different packaging styles and delivering each one to limited test market stores where their individual sales can be measured.

#### **Primary Market Research Method #5 – Observation**

Observational research can come in a different shapes and sizes. In general, there are two categories: strict observation with no interaction with the subject at all, or observation with some level of intervention/interaction between the researcher and subject. The greatest benefit of this technique is that researchers can measure *actual behavior*, as opposed to user-reported behavior. That's a big deal, because people will often report one thing on a survey, but behaves in another way when the rubber hits the road. Observational research is a direct reflection of "real life," so these insights are often very reliable and useful.

There are many examples of observational research. Here are a few:

- *Usability testing* – Watching a subject use a prototype device is one form of observational research. Again, this can be done with or without intervention.
- *Eye Tracking* – Let's say you have come up with a website. You might ask people to navigate your website, and you will use eye tracking technology to create a "heat map" of where their eyes go on the website. This information can be used to re-design and optimize the page elements.
- *Contextual Inquiry* – This is a hybrid form of research that involves interviewing subjects as the researcher watches them work or play in their natural environment.
- *In-Home Observation* – Watching a family member go through the morning routine in their home might turn up useful insights into pain-points that need solving.
- *In-Store Observation* – Simply watching shoppers in action is another form of observational research. What do shoppers notice? How do they go through a store? etc.
- *Mystery Shoppers* – This involves hiring a regular person to go into a store and pretend to be an everyday shopper. They will then report on aspects of their experience, such as store cleanliness, politeness of staff, etc. In the case, the mystery shopper is the researcher and the store is the subject being observed.

### **5. Case Studies and its Comparison**

Consumer insights drive New Product Development. This information takes into account their behaviors, attitudes and beliefs. It is an expression of their wishes and desires. Businesses use consumer insights to create opportunities for their brands. It is the starting point that enables brands to fit meaningfully into consumers' lives. Across countries, consumers are different in terms of culture and lifestyle. A deodorant company's challenge was to find similar insights from consumers across different countries. This was used to optimize product development. In the deodorant category, the company used many secondary research sources to discover consumers' views and their need for deodorants. These related to different markets and were supplied by local country market researchers. These included: (i). A consumer Usage and Attitude study. This had been conducted a few years earlier across various markets (UK, France and USA). ii. An external study by Fragrance Houses. This covered the importance of scent and fragrance to people's well-being and mood.

The research team felt therefore there was not enough recent knowledge about the consumer in the secondary research. They commissioned some primary qualitative research in key markets (Germany, France, UK and USA). This was aided by the local Market Research Manager. The aim was to understand the motivations for using deodorant amongst the female consumer. Primary research is used when there is no existing data available to answer your questions. The research involved small discussion groups of females. This helped researchers understand the beliefs and motivations of this group.

Quantitative research on the concept was carried out in two test markets (France and Germany). An international company's must test products in more than one market to assess properly the global appeal. The concepts were tested monadically. Monadic testing means that the respondent of the test is only shown one concept. This stops the respondent being biased by seeing many variations of the same product concept

Next the research team tested various name ideas for the product and developed different designs for the packaging. Packaging design plays a very important role in helping to communicate the image of the product. Pearl and Beauty needed to

communicate femininity and sophistication. Pink was a natural color choice for the packaging. They also used a soft pearlescent container to emphasize the 'pearl extracts' in the product. Various design ideas were tested using quantitative market research. In addition, this helped to predict the volume of the new products that would be sold, the optimal selling price and the level of switching from existing Deodorant and competitor products.

The way in which normal conventional methods of survey techniques like above mentioned case study differ from the surveying technique mentioned in this paper is that, there is a case of research carried out only after the entire product is created and tested and when it finally reaches the hands of the consumers. On the other hand there should be a need to identify the consumer directly before the product is being actually planned and manufactured, which is stated in the tools of market survey techniques. This will ensure a good improvement in the overall base of the company, with the enhanced methods of Total Quality Management systems.

### Questionnaire Ways

#### A. Consumers

QUESTIONS	ANSWERS OBSERVED
What is their annual consumption and requirement?	
What is their present source of supply?	
What is the customer's brand loyalty and preferences about price, quality, payment terms, etc?	
Are they satisfied with the present product and supply?	
What is their purchasing criteria and purchasing power?	
What is the consumption pattern? (basis to calculate their requirements)	
What could be the future consumption pattern, in quantity and quality due to technological changes, etc?	
What is the size of the average order, specifications and time and frequency of their placement?	
What is the life of your potential buyer?	
Their age group, sex?	
What geographical area they live in? Urban, village and which part of the country?	

#### B. SUPPLIERS (TRADERS)

QUESTIONS	ANSWERS OBSERVED
Who are the principal traders in the item, their range of products and business terms/commissions, etc?	
What is the possibility to trade with them and on what business terms?	
What is the normal stock level maintained and problems in stocking?	
What are future predictions on business conditions?	

#### C. Manufacturers and Competitors

QUESTIONS	ANSWERS OBSERVED
What is their products range, installed capacity, selling price?	
What are their normal business terms about payment, price, etc?	
What are their salient features, like technical skill, finance, other resources, etc.?	
What are their strengths and weaknesses? (Try to do their SWOT analysis)	
Where do they get information regarding market and consumer product files from?	

#### D. For Information On Machinery And Equipment

QUESTIONS	ANSWERS OBSERVED
Who are the manufacturers/suppliers?	
What capacity, specifications and brands are available in market?	
What is the price of the machine? (including all taxes)	
Which electrical equipments, like motor, starters, switches, are needed?	
What performance guarantees/warranties are given? Is the supplier/manufacturer reputed and reliable?	
What is the normal repair/maintenance cost per year?	
What spare parts would be frequently required?	
What quality and maximum output (production) a machine can give?	
Does the supplier train you/staff to acquire skills to operate machinery?	

#### Scope of this System

Tools for planning research efforts, and collecting and analyzing qualitative data are limited in marketing research. Two problems arise from this limitation. First, plans for collecting data are often under- or improperly-focused because the



objectives of the research effort are not clearly specified. Second, researchers are often left with unstructured processes for analyzing the data generated from interviews or focus groups. Thus, tools that can help marketing researchers to plan their research efforts, and help to structure and analyze qualitative data would be useful. This paper introduces several such tools from the discipline of total quality management. These tools are useful in the planning of marketing research, as well as in the collection, organization, and analysis of qualitative marketing research data. First, we outline a potential gap in the marketing researcher's capability to analyze verbal data. Next, we introduce tools for addressing this gap, and describe the purpose(s) for which each tool can be applied in a marketing research context. The third and final section of the paper discusses how the tools can be combined to provide more thorough planning and even richer insight into collected data.

As said before, the process of total quality management purely depends upon the entire process of operation from the ground work to the consumer's feedback. This way approaching the need to maintain a constant development in an industry, the mentioned tools and applications will surely help in a tremendous way. The futuristic path for that industry will be opened in a way that the managers, employees, workers, staffs and such personnel find it easy to sustain the required development.

## 6. Conclusion

Markets are changing rapidly, becoming complex and competitive. It is difficult to keep pace with the rapidly changing demand and supply patterns as an entrepreneur is unable to respond quickly to a new environment. The industry needs better market understanding and a market survey methodology puts him in contact with the quality enhancing ideas that will benefit the industry.

The primary function of this paper has been to introduce to marketing researchers a variety of tools that have been used in the quality management area. These tools can be used as a system, or individually, to address a wide range of marketing research issues. The means by which the tools should be employed (individually or together) is up to the discretion of the researcher given the nature of the problem or project. Marketing researchers can apply the tools in planning their research efforts, and collecting verbal response data that are otherwise difficult to analyze. These tools can be improved and their applications more fully explored as they are incorporated into marketing research. A systematic use of this tool can reduce risks in decision-making.

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