CHAPTER 1: INTRODUCTION

“In order to compete in a global economy, our products, systems and services must be of a higher quality than our competitors.”

- Mohanty R.P [158, p.754]

This chapter outlines the research background, states the research aim and objectives, and describes the research scope. It includes, QM initiatives, concept of quality, QM by adopting good quality practices, and relationship between quality practices and performance. This chapter also describes the scope and framework of the research. Finally, it concludes with a description of the structure of this thesis.

1.1 Background

The last three decades of industrialization under the prime strategies of Liberalisation, Privatisation and Globalization (LPG) have witnessed the forceful emergence onto the business scene of a new culture, movement or paradigm of company management, focused on concept of quality and quality initiatives. In business world these quality initiatives refer to quality management programs, quality certifications, quality award models, and methodologies. Originally, it was movement whose impact was only limited to industrial sector, later following natural evolution of models of Quality Management (QM), it was also reviled in service sectors. Key competitive business strategies include both achieving lower cost and adding value to improve the competitive performance through QM. The benefits of quality improvement can not only be reflected on decreasing cost, but also on maximizing business profits [52]. Recently, QM practices have gained the importance because they provide the tools to improve the quality of the products or services that firm delivers to achieve the customer satisfaction. Current globalized trend has forced all industries irrespective of size and the area of manufacturing; to adopt more performance significant quality management practices for the survival in high competitive and throat cutting atmosphere.

Given the competitive pressure, many manufacturing companies continuously seek ways to improve quality. Quality Management System (QMS) is centred activity associated with continuous improvement in the performance of organization. QMS has many challenges to the managers with a common matter of interest is to satisfy the
customers & to sustain global competitive pressure for long-term success. Both ISO 9000 and Total Quality Management (TQM) are the two approaches that claim, if implemented in industries; they gives competitive advantage to firms. Thus it remains as an important issue for any organization to start either with ISO 9000 or TQM as a business strategy. In addition to this, there are several characteristics that also differentiate large firms from SMEs, which could affect the method and implementation of quality practices [72].

The variety of sectoral and downstream supply chain of Asian countries is also seeking for the next motivational level of quality excellence. In India, SMEs plays a pivotal role in the overall industrial economy of the country. It is estimated that in terms of value, the sector accounts for about 39% of the manufacturing output and around 33% of the total export of the country [221]. Further, in recent years the SMEs have consistently registered higher growth rate compared to the overall industrial sector [162]. The major advantage of the industrial sector is its employment potential at low capital cost [119]. As per available statistics, this sector employs an estimated 31 million persons spread over 12.8 million enterprises and the labour intensity in the SMEs is estimated to be almost four times higher than the large enterprises [112]. Manufacturing companies in India have never had it so tough, after having the contend with recent economic crisis and witnessing the global slow down, they are now confronting with the increase in prices of raw materials, interest rates, high customer expectation on the quality of products and services.

It was noted in explorative findings of Sedani and Lakhe [206-207] that in India, the development of a QM training market spurs the customer need for better governance by ISO 9000 certification and several national Quality awards. Among the most prestigious national quality awards of India are the Rajiv Gandhi National Quality Awards (RGNQA), IMC Ramakrishna National Quality Award (RBNQA), CII EXIM Award, and Golden Peacock National Quality Award (GPNQA). All these awards have derived their guidelines from the Malcolm Baldrige National Quality Award (MBNQA) and the European Foundation for Quality Management (EFQM).
1.2 The concept of Quality

Quality is an important consideration for executive thinking. It is difficult to identify any major organization in which quality issues are not on management’s agenda. While Quality practitioners have shown interest in the concept of quality, many have been frustrated by its elusiveness. They find diverse and often conflicting definitions in professional books, journals and news media [139]

Earlier quality gurus define quality as ‘a fitness for use’ [117] ‘conformance to requirement’ [41] and ‘the total composite product and service in use that meet the expectations of the customer’ [65]. The ISO 8402 quality vocabulary and ISO 9000 series defines ‘Quality’ as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs [47]. Today the scope of quality has been extended. Five dimensions of quality by Dr. Kano, indicates that quality is not always sufficient to fulfil the expectations of the customers: sometimes it must exceed them, providing the exciting experiences, or so-called ‘attractive quality’ [38].

The concept of quality has been often been defined, from a transcendent view, as innate excellence which implies that quality is something timeless and enduring, an essence that transcends or rises above individual tastes or styles [71]. It often regards quality as an unanalyzable property that people learn to recognize through experience, just as Plato argued that beauty can be understood only after exposure to series of objects that display its characteristics. Walter A. Shewhart (1931), the father of modern-day statistical control offered the criticism to transcendent view of quality that it does not offer any information to managers how to purse excellence [118] . The definition of quality must be more pragmatic, more objective and more tangible and it must inform managers about how to make improvements. There are at least three views of quality that provides these insights for managers: product-based, manufacturing based and user based views of quality [28].

Despite common themes such as continuous improvement, customer focus and excellence, different people emphasize and defined quality in past as:
A pragmatic system of continual improvement and a way to successfully organize man and machine.

The unyielding and continuing effort by everyone in an organization to understand, meets, and exceeds the needs of its customers.

The best products that you can produce with the materials that you have to work with.

It contains the meaning of excellence and fitness to the purpose.

It is the degree to which product or service meets specifications and needs of customer.

Managing quality has quickly moved from inspection to quality control (QC) to quality assurance (QA) and through to Total Quality management (TQM); a progression in which new developments do not negate their predecessors, but rather built on them. Appendix 1.1 shows early and recent stages of managing quality.

1.3 Quality Management and good quality practices

Quality Management (QM) is a concept used on continuous improvement in the performance of processes in an organization and in the quality of products and services that are output of those processes. It is a team activity, demands a new culture, emphasis and it calls for discipline and quality knowledge. Since 1960s, there were many Japanese, European and US initiatives suggested for quality management and process excellence, leading from adaptive total quality approach to World-Class manufacturing. The definition, of QM which describes actual quality management in the US and Japan is:

“QM is defined as an integrated approach to achieving and sustaining high quality output, focusing on the maintenance and continuous improvement of process and defect prevention at all levels and all functions of the organization, in order to meet or exceed customer satisfaction.”

- Flynn et al. [67]

Adam [3] suggested that alternative quality improvement approaches do exists, dependent on behavioural interventions, different management practices, alternative problem solving methods, and statistical process control. He suggested Total Quality Management (TQM) and MBNQA guidelines, to choose any for continual improvement in manufacturing firms. The emphasis of socio-behavioural over processes and technical
factors explains the variation in performance, and QM researchers have rarely extended their theories to include both social and technical aspects of organizational and process design [51].

Meanwhile the study by Sun [203] found that ISO 9000 standards are partially related to TQM and the improvement of business performance, and commonly focus on “good quality practices” of leadership, customer focus, and human resource management along with supplier management. It was previously mentioned by Dow et al. that “good quality practices” are the essence of QM to lead process excellence and improvement in organizational performance [58].

The other researchers, Saraph et al.[203], Ahire [11], Black and Porter [27], Rao et al. [195], Terziovski and Samson [232], and Motwani [167] looked into the approaches of TQM implementation by providing the critical factors of QM; representing best practices or good quality practices for organizational performance improvement. The significant contribution of various scholars provided several frameworks to assess the TQM implementation in firms, and to establish the relationship with performance.

In the late 1990s the challenge, in a sense, to understand and implement TQM and other good quality practices for performance improvement was clearly understood through the development and worldwide acceptance of MBNQA [126]. Previous research [202] demonstrated the logic of the US Malcolm Baldrige National Quality Award Model (MBNQA) is consistent with the principles of quality management proposed by several quality gurus. Standing out at European level, the “European Quality Awards” is granted by the EFQM for the implementation of TQM [103]. The MBNQA model establishes three business categories: manufacturing, service and small business and it is quite important to mention that, the model guidelines are the same for large firms and SMEs. [7, 103, and 222]

QM Systems such as ISO 9000 and TQM help firms to better organize and coordinate their operations by documenting their processes, defining responsibilities of employees and by putting in preventive measures to prevent errors. However irrespective of firm size, European countries usually implement ISO 9000 more often than TQM, while in the United States, Japan, Brazil and Canada ISO 9000 certification is not so accepted because TQM prompts managers to pursue higher levels of quality in comparison with
ISO certification. The literature also suggests that there has been little research on whether small and large firms implement TQM programmes differently [12].

The last decade, of QM research was dominated by the issue mainly intended to link ISO 9000 with TQM. Many scholars tried to analyze the link between ISO 9000 and TQM, to investigate whether they are complementary or contradictory to each other [84-85, 122, and 129]

Few more studies have recommended that ISO 9000 should be implemented within TQM environment in order to yield significant benefits (20, 34). Specifically, Bradley suggests that ISO 9000 can be excellent start to TQM [29]. Few studies also linked the ISO 9000 with the Business Excellence Models like MBNQA (144, 227), and EFQM [103] to identify motivational aspect behind implementing the specific typology in European and US manufacturing industries.

In extensive search with Pro Quest [183] using the term “quality practices/techniques”, it was found that there were more than 5000 articles that have a combination of these words in the title, abstract, or body of the text. Using other search terms such as QC, QM or its abbreviation TQM, ISO 9000, Quality awards, Quality management tools such as SPC and SQC; the result again produced thousand of articles. Taking into consideration the number of research publication written on the subject, it is quite easy to conclude that quality practices (i.e. good quality practices) is one of the most talked about the topics in the history of QM literature.

1.4 Quality and performance

Powell [178] raised a series of question regarding QM practices and performance. He suggests that there are significant relationship between, quality practices, competitive advantage and business performance; also there are several tangible and intangible factors such as improvement in processes, product features, labour productivity, quality information usage, customer satisfaction, employee satisfaction, reduction in defects, customer complaints, and inspection cost etc., mainly responsible for improvement in competitiveness and attaining the sales targets of the firms [171,172, 181, 185, 187, and 191]

Many studies have looked at the application of TQM in Industries. Shea & Gobeli [213], Moreno-Luzon [166], Ghobadian & Gallear [72], and North et al. [151] examined
the factors that were responsible for successful TQM programmes in both small and large enterprises and also found that firms experiencing greatest success with TQM on innovations, in products, and markets.

Few studies tried to investigate the phenomenon of waist popularity of ISO certification; by identifying the reasons for attaining the registration for certification and relating the outcomes with performance outcomes. An important group of researchers, Terziovski et al. [211], Abdul-Aziz et al. [1], Ali Uyar [15], Anderson & Sohal [17], Brown and Weile [32], Easton & Jarrell [61], Gotzamani & Tsiotras [85], Heras et al. [96], Hongmeng et al. [101], Mile Terziovski et al.[138], and Wayhan, Kirche, and Khumawala [222], has not found any relationship between ISO certification and results. However, there is another group of articles that point outs an influence of registration on product quality [180, 192, 198, 203, and 227]

Several studies also examined different facet of quality practices on MBNQA framework [5, 6, 13, 21, 43, 49, 62, 81, 102, 107, and 121] and EFQM framework [133, 135, 153, and 163] with both satisfactory and unsatisfactory outcomes with performance.

It was also suggested that impact of length of time with TQM adoption will be realised over a time period [12]. Prajogo and Brown [162] have reported the analysis of TQM adoption with years of implementation with quality practices and performance. The QM literature of longitudinal studies in past reports the embark of “time” element along with size and age of firm [32] sales turnover (82, 193) and other financial indicators [131] to indicate, how finding differs with respect to time in ISO certified and TQM practicing firms.

In relation with performance, North et al. [169] have defined quality adoption typologies into two groups; the first one is complex group of formal quality (like ISO 9000, TQM and Quality Awards) and the other is simplex form of informal quality. As QM principles and techniques are well accepted part of every managers “tool kit”, most firms have adopted, Total Quality Management (TQM) in some form [160], and official quality awards are badge of honour whether a company is operating in Japan (The Deming prize), the United States (MBNQA), Europe (The European Quality Award), or Australia (The Australian Quality Award). In examining QM adoption strategies, research by Van der Wiele & Brown [236] found that whilst many SMEs could be classified as adopting
minimalist approach to ISO 9000, simply to gain the certificate and little else and other had engaged in broader activities might be termed as TQM. Sun [222] supported this argument through empirical investigations in Europe, and stated that ISO 9000 certification is seen as quality programme in SMEs; while quality movement for larger companies is identified as TQM. His argument, point outs the difference in adoption of quality practices in SMEs and large firms. Flynn [66-67] recommended more QM frameworks to address the future research; for benchmarking the quality practices and firms performance against referent organizations.

Whilst there are many studies that examines links between quality and performance, literature till date provides the information that there is negligible research which examines the link between approaches to quality adoption and manufacturing performance in SMEs as well as large industries. Many empirical analysis in past, also raised the question about considering the other important factors such as age and size of industry, and annual sales turnover along with technology used for manufacturing [80], to analyse the relationship with quality manufacturing practices and performance, since these factors differentiates SMEs with large enterprises on the basis of product quality and innovation [77]

1.5 Research aim and objectives

Based on above discussion, it was primarily observed that even after three decades; QM research is still lagging in:

- The highly effective QMS (Model of good quality practices) which integrates the most popular quality practices of ISO 9000, TQM and Business Excellence Models to assess the impact on performance measures in industries.

- An empirical investigation about which quality practice (either ISO 9000 or TQM) is highly congruent with winning of Quality awards in industries

- An empirical assessment of the impact of length of time with quality adoption (year with ISO certification and TQM) over manufacturing practices and performance.
• An empirical assessment of approaches to quality adoption in industries (such as TQM before ISO 9000 and vice versa) to analyze the difference in performance measures of SMEs.

• An empirical investigation for impact of other factors (age and size of firm, annual sales turnover, and type of manufacturing) on performance measures of firms to differentiate SMEs from large enterprises.

• Empirical investigations for the difference in manufacturing performance of SMEs and large enterprises due to implementation and adoption of quality practices.

Considering these theoretical gaps in the QM research, present research primarily aims to develop the model for adopting good quality practices in industries by integrating ISO 9000, TQM, and BE Models to assess the impact on manufacturing practices and performance (performance measures) in industries, and to design the new questionnaire based on developed model for self assessment of quality practices and manufacturing performance in quality practising organizations.

The other objectives of this study also involve the task of investigating the clearly specified approaches to quality adoption in industries such as ISO 9000 first or TQM and vice versa, to examine the significant impact of quality practices on performance measures. As mentioned previously, considering the length of time with quality implementation in manufacturing firms, this research also seeks to examine the impact of length of time on manufacturing practices and performance.

It was mentioned in past, that SMEs are differentiated from large firms, mostly due to the surrounding effect (impact) of other factors such as, age of firm; size of firm; annual sales of firm; and technology used for manufacturing (type of manufacturing) along with implementation of quality practices. Considering this issue, also as an important one, this study also seeks to empirically investigate the impact of these influencing factors on manufacturing performance.

Finally, this research would like to examine the difference in manufacturing performance outcomes of SMEs and large firms, due to implementation and adoption of quality practices. This examination is intended to investigate whether, quality practice helps in,
• improving the processes
• improving the product innovation,
• increasing the financial returns of the firm, and shows the
• improvement in customers satisfaction
• increase in employee morale and satisfaction

1.6 Scope of the research

Findings of this study will provide the information to many quality practitioners (as well as researchers) for adopting the good quality practices in industries, with an empirical support to indicate the impact on performance measures. The newly designed frame-work will also provide the tool for self assessment of quality practices and manufacturing performance to several quality practitioners.

Study will also provide the empirical assessment for impact of quality adoption and their order of implementation (such as ISO 9000 first, TQM later and vice versa) on manufacturing practices and performance of firm. This part will support to make a decision-aid about implementing the quality practices in manufacturing units, and its impact on performance.

Many quality managers found themselves in dilemma, while deciding the length of time to stick with specific quality practice in their firms and possible impact on performance improvements. This study will provide them, a decision-aid (through empirical examination) to decide the “time-frame” with specific topology in view of improving the manufacturing performance.

Most quality practitioners’ from SMEs are always keen and curious about knowing the comparison of their firm, with large manufacturing units. They consider LE as ‘Benchmark’, and would like to follow their path/strategy for quality initiatives and performance improvements. As such, this research will provide the impact of other factors on manufacturing performance along with implementation of quality practices to differentiate the quality culture of SMEs with LE. This part will provide the information about which factors significantly, influences the performance measures.

Finally, this research will provide the investigations impact of quality practices on product quality, process improvement, financial performance, customer satisfaction, and
employee satisfaction to the quality practitioners of SMEs and LE. This will indicate the difference in performance measures of firm, and also provide the comparison of performance outcomes of SMEs with LE.

1.7 Structure of the Thesis

The remaining part of this thesis is organized into six chapters. A chapter wise summary is:

Chapter II

This chapter presents a general review of the literature available on quality practices and performance. The Five major disciplines in the literature review of QM research: Evolution of QM, Quality practices in industries, Critical factors of QM, Implementation and approaches to quality adoption, Quality and performance is described to understand the theoretical background of the study. This chapter also presents the models for quality practices and performance improvement, and comparison among ISO 9000, TQM and BE Models. Chapter ends with theoretical gap analysis of literature review.

Chapter III

This chapter provides the research design and methodology for empirical examination of quality practices and performance. The three phases of research: Establishing the conceptual background, development of model and design of research instrument of the study, and survey design to obtain several empirical investigations; is described in detail. The other research methodologies such as deciding population, source of empirical data, formulation of hypotheses etc. is mentioned further for data collection. The chapter ends with conclusion.

Chapter IV

This chapter presents the data collection and data analysis in three sections. The first part provides the analysis of organizational and quality profile of respondents belonging to random sample (SMEs), and purposive sample (QA winning industries). The second part presents the assessment for scale stability prior to the main empirical analysis. This part describes the factor analysis, reliability & validity analysis, chi-square
test of independence, and composite score of all constructs. Based on several responses, the comparative analysis of three groups: Group I (only ISO certified firms, not implemented any formal TQM programme); Group II (ISO certified firms, have implemented formal TQM programme), and Group III (industries won the national Quality Awards) is also presented in this part. Finally, the analysis of several hypotheses based on research objectives of this study and the analysis for two open ended questions; is presented further in this section. The chapter ends with discussion.

Chapter V
This chapter presents the result and interpretations of empirical findings. The comparison of findings of this research with past literature; is also mentioned in this chapter. The chapter ends with discussion and conclusion.

Chapter VI
This chapter summarises and discusses the knowledge gained from this research. It provides the summary of key evidences of findings; recommendations for quality managers; roadmap to move from ISO 9000 to TQM; and business excellence, limitations of present research work, and scope for the future-work. The chapter ends with conclusion.

Finally, thesis ends with Bibliography and set of Appendices.