



# **The Impact of Quality Management Tools & Techniques and Innovative Emerging Technology on Smes Quality Orientation and Firm Performance**

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**ABSTRACT**

A review of literature on Quality-Orientation (QO) and Firm performance (FP), impact of Quality Management Tools and techniques (QMTT), Innovativeness and emerging technology (InnovET) usage on Quality-Orientation (QO) of firm and Firm performance. It identifies the importance of usage of tools and techniques for each principal of Quality Orientations for consistent firm performance and usage of innovative emerging technology for firm competitiveness. We also review the generalizability of QMTT and InnovET as mediating and moderating constructs on firm performance. Future implications on quantification of QO for further research.

**Key Words:** Quality Orientations, Quality Management Principles, Quality Management Tools and Techniques, Innovativeness, Emerging Technologies, Firm Performance, SMEs Service sector.

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## **Introduction**

Research into small and medium sized enterprises (SMEs) has grown during the last 2 decades. As SMEs play a significant role in world economy. Consequently, the performance of the SME sector impacts the performance of the nation. Global economy optimism is at 65%, where in 71% Indian SMEs are optimistic about domestic economy (American Express and Oxford Economy Global SME Pulse2 2017). With the Indian economy expected to emerge as one of the leading economies in the world and likely to become a \$5 trillion economy by 2025, major impetus is being given to strengthen SME sector, which is the backbone of our economy. Indian SMEs are overwhelmingly optimistic about the health of the world economy (Indian SME trends by ET, 2017). Success of SMEs is important for a Nation and its service firms. Even though some SMEs have been growing and are successful, consistency in business is important. Firm's quality and innovative orientation play a major role (Utterback and Abernathy 1975). Service organizations who fail to follow have been on a decline or stagnant. Study of this industry shall be helpful (Indian SME trends by ET, 2017, Agarwal, Eramilli and Dev 2003, Faulconbridge et all 2009).

Entrepreneurs of SMEs are confronted with various problems impacting their performance (Korsakiene & Diskiene 2015). Innovativeness is being analyzed have positive relation result of a firm (Lumpkin and Dess 1996). Performance of a firm is dependent on Quality Orientation too (Miles, Russell, Arnold (1995).

Quality Orientation (QO) is defined as deployment of Quality Management Principles like, organizational commitment to maximize long term value, Teamwork, Customer Value and Focus, Innovative performance, Continuous improvement, Top management leadership, Employee management, Customer focus, Supplier management, Quality data and reporting, Process management, Innovative performance, Innovation leads to success for a firm, (Davis, Bell, Payne & Kreiser, 2010, Mohr-Jackson, 1996; Kaynak, 2003). (Miles, Russell, Arnold (1995), Hoegl, 2005) Cagri Bulut (2017) (Elshaer & Augustyn 2016). (Abd-Elwahed 2018),, It creates a better value for customers and ultimately superior performance, it must integrate into the organization's business philosophy (Miles, Russell & Arnold 1995).

Quality Management Principles implementation requires specific tools and techniques for an organization to achieve better performance. The quality tools and techniques are in many statistical and Management forms and are applicable in every aspect of business (Pyzdek, T. 2003). Tool usage being used in reality and or superficially studied with respect to Quality Orientation (Clegg, Rees and Titchen 2009). There are attempts to study Impact of Tools but from training effectiveness of only (Elshaer, Augustyn 2016) not from

Impact on firm performance perspective. It is also evident Quality Management is not practiced widely or successfully in the service sector (Clegg et all 2009).

Our study also observed that there is an Innovation tools dimension which influences firm performance (Horng, Tsai 2012). The assessment of the influence of TQM on innovative performance is essential and an effective tool for figuring out innovation performance of the firm (Prajogo & Sohal, 2006). Emerging technologies for Artificial Intelligence (AI) to predict exactly what customers want, competitors will inevitably figure out how it works. If firms do not utilize it, will probably go out of business given its superiority to predict customers' wants (Makridakis 2017). The concept of innovation and development and accentuates new ideas and the propensity for change within a firm.

Firms that have greater innovation-related needs and abilities are expected to exhibit a greater amount of innovative activity (Robert G. Fichman 2004). Guidance to managers on the question of "whether, when, and how to innovate" (Swanson and Ramiller, 2004). In an effort to accomplish good performance, firms should embrace both innovation and quality principles (Arshad, Wang, Su, (2016). **There is dearth of theory explaining how the technology unit of a firm could contribute to the firm's performance (Taradar & Tanriverdi 2018).**

Firm Performance is impacted by Quality Orientation of a firm. Firm performance is confined to quality management, Innovative capacity (Atkinson et al., 1997). The competitive requirements for Firm Performance are the usage of Emerging Technologies for Innovations as: bigdata, algorithmic decisions and operational excellence (Makridakis 2017) it is one of the QM Principles. Emerging technologies will bring revolutionary changes to the business environment. The successful firms during the AI revolution will oversee evaluating and exploiting AI technologies to gain the most out of their implementation in all aspects of the firm.

### **Objective:**

Prior research reflects that Quality Orientation (QO) is defined as organizations proclivity towards QM Principles like, Continuous Improvement and Innovation, Customer focus, Minimizing Variation. Top management commitment, Innovation, Process Quality. Top management leadership, Employee management, Customer focus, Supplier management, Quality data and reporting, Process management, Value, Proactive (Elshaer & Augustyn 2016; Achrol 1991; Cravens, Hills, Woodruff 1987; Criehton M – 1992). Details of tools to be used for each QM principle of QO is not sufficiently studied, there is an opportunity to add to the body of knowledge. Quality Management Tools & Techniques (QMTT) used to drive Quality Management (QM) Principles are not explicitly studied in the past. If the Tools have been studied, they have not been studied with respect to Quality Orientation for Firm's Performance (Mehra, Joyal, Rhee 2011, 2009\_Clegg, 2018\_Abd-Elwahed). Very less or limited study has been done to compare all dimensions of QM Tools and Techniques effectiveness on Firm Performance. Example: Correlation of Learning, Usage, Implementation and Impact as Independent variables of QM Tools and Techniques can reflect on organizational focus on Firm Performance, in other words, essentials to be concentrated then trivial many Tools and Techniques for better performance. SMEs contributes to economic and social transformation of a nations and it is known that leveraging information technology can facilitate their continued growth and development (QECD, 2004). Previous researchers reflect limited attention to Entrepreneurial Orientation, Market Orientation and TQM in the SMEs; a lot of opportunities still abound to extend theoretically and empirically the literature on EO, MO, TQM and SMEs performance (Gamal, Haim, Abdullahi, Hassan 2017). In the below model (Pico1) QO to Firm Performance has been studied in length, however QO from QM tools and techniques for firm performance is insufficiently studies. To be relevant in the competitive market effect of Emerging technologies for Innovation also need to be tested on Firm Performance.

### **Literature Review:**

**What is Quality Orientation?** The quality orientation (QO) is a construct that describes an organizational philosophical commitment for developing and maintaining a competitive advantage, based upon a quality focus. (Miles, Russell, Arnold 1995). Quality Orientation (QO) is also defined as organization wide proclivity on Continuous Improvement (CI), Teamwork, Customer Value (Mohr-Jackson, 1996; Kaynak, 2003). Total quality orientation is the organization-wide commitment to continuous improvement for delivery of customer- perceived quality and ultimately customer satisfaction (Mohr-Jackson 1998). QM literature does not provide accepted definition of QO (Heine, Schmitt, Beaujean (2016). The culture driven in a firm is the construct of Quality Orientation.

**Why Quality Orientation?** It is imperative to study what other attributes constitutes Quality Orientation and within variables of Continuous Improvement (CI), Teamwork, Customer Value. In-turn how does it affect an organization performance. Post research of most cited and papers from year 1995 to 2017, different dimensions have been studied by researchers on QO. It is imperative to adopt QO constructs and re look at the relevance of QO in service SMEs'. It varies indifferent researches as depicted in table01.

Attributes of quality orientation are defined as customer focus (Miles, Russell, Arnold (1995), (Malhotra, Lee & Usley 2012) continuous improvement (Cagri Bulut (2017); Malhotra, Lee, Usley 2012); Heine, Schmitt &

Beaujean (2016) ; Miles, Russell & Arnold (1995); Kaynak (2003). team work (Cagri Bulut 2017), Minimizing Process Variation, Focus on Quality Improvement, TQM Culture, top management commitment (Mokhtar, Sanuri-Mohd & Zien 2010), process quality management, quality design of a new product performance (Mokhtar, Sanuri-Mohd & Zien 2010), Reducing variation in operational processes and routines , commitment to continuous improvement, reduction cost objectives, reduction in cost measures, internal customer focus, external customer focus, continuous improvement (CI), orientation system thinking perspectives (Heine, Schmitt & Beaujean 2016), being “*data driven organization, value*” (Achrol, R.s 1991), Heine, Schmitt, Beaujean (2016), continuous improvement and innovation (Cravens, Hills & Woodruff 1987), being proactive(Criehton 1992), innovative performance of an organization is main component of QO (Cagri Bulut 2017). A systems perspective that explicitly considers external costs (Miles, Russell & Arnold, 1995). Organizational commitment to maximize long term value and stakeholder satisfaction by constantly reducing the product related losses to society (Miles, Russell, Arnold (1995). System perspective (Malhotra, Lee, Usley 2012). Leadership, customer/supplier focus and relations, employee relations, product/process management, continuous improvement and teamwork (PK Ng, GG Gan Goh, UC Eze 2009), internal operations to increase value to customers (PK Ng, GG Goh, UC Eze 2009). Quality Management of organizations deals with satisfying current customers by using “*teamwork*” (Hoegl, 2005). Above literature clearly states there these are part of Quality Management principles.

At what stage of supply chain Continuous Improvement (CI) tools are used. Details of which tools used at its impact is insufficiently studied. CI impact on project performance in turn firm performance is the key. There is no explicit reference available on orientation of an organization on Continuous Improvement tools under Quality Management.

**Constructs of Quality-Orientation (QO):** QO constructs as studied in prior research are customer Focus,continuous Improvement, teamwork (Cagri Bulut 2017), QO is to minimize variation in organizations processes (Sethi and Sethi 2009), focus on quality improvement including TQM is termed as Quality Orientation (Sethi & Sethi 2009), new product performance (Mokhtar, Sanuri Mohd & Zien 2010), top management commitment, process quality management, quality design with new product performance. Reducing variationin operational processes and routines (Malhotra, Lee, Usley 2012), “*Organization wide commitment to continuous Improvement in delivery of customer-Perceived quality*” (Deming 2000, Oliver 2009), “*reduction cost objectives considered as direct way to influence profitability*” (Raju abd-Lonial 2002) and reduction in cost measures (Macedi, Liao, Pinho 2017).

QO constructs are also defined as, having internal customer focus and external customer focus, continuous improvement orientation system thinking perspectives and being a data driven organization (Hein, Schmitt & Beaujean 2016). Quality Orientation refers to the organizational wide proclivity on Continuous Improvement and coordinated teamwork and considers the Customers as the ultimate value of the organization (Mohr- Jackson, 1996; Kaynak, 2003).

One new variable of QO, quality tools was found and investigated by an author, was quality tools applied on new product performance is important for the firm (Mokhtar, Sany Sanuri Mohd, Zien 2010). Interestingly reduction in variations of the process is also studied “core thrust of Quality Orientation is on reducing variation in organizational processes and routines” (PK Ng, Goh, Eze 2009). QO constructs are also called critical success factors by Kee-Hung Lai (2003). These are 1) people and customer management 2) supplier partnership, 3) Communication of improvement information 4) Customer satisfaction orientation 5) External interface management, 6) Strategic quality management, 7) Teamwork structures for improvement, 8) Operational quality planning, 9) Quality improvement measurement systems, 10) Corporate quality culture. and business performance: measures and questions:

Quality Orientation as emerging philosophy (Miles, Russell, Arnold 1995): defines attributes as Customer Satisfaction, Employee Empowerment, Quality Focus, Procedural Improvement, High level product, Low variability in production function. Measures if Quality are: Return on Quality (Kotler 1994), Customer satisfaction, Long term Profits, Financial ratios.

Impact on firm can be looked at from these constructs of QO, 1) Motivation performance 2) Market performance, 3) Productivity performance, 4) Societal performance. It is also studied by authors that medical technology investment alone does not contribute to a significant improvement in hospital service quality (L.X.Li. (1997). QO is integral part of Business Success (Miles, Russell, Arnold (1995).

Prior research indicates that the difference between the customer expectation and customer experience is vital for customer satisfaction and in turn firm Performance. (Parasuraman et all 2000). Quality Orientation can lead to a good process output which will result in customer satisfaction. Answer to the above research question will help us empirically validate the above argument and understand the linkages between Quality Orientation and firm performance. It will also help us reiterate the importance of having a Quality Orientation in progressive enterprises for them to succeed in a competitive market environment.

### Quality Management Principles and Quality Orientation

QM principles have been studied in length by researchers below table is a summarized for a quick view. By each QM Principle areas covered and authors who contributed to the literature (Yeng 2018).

**Table 01: TQM Elements and Principles for QO**

<b>QM Principle</b>	<b>Other terms used in literature</b>	<b>Author and reference</b>
Leadership	Leadership and management commitment	Barouch et al. (2016)
	Top management support	Mahmood et al. (2015)
	Leadership	Frolova et al. (2015)
	Management leadership	Kivipold et al. (2013)
	Management commitment	Abdullah & Tari (2012)
	Top management/Leadership	Elshaer et al. (2016)
Strategic planning	Quality system	Lakhal et al. (2006)
	Benchmarking	Sit et al. (2009)
Supplier's quality management	Supplier's quality management	Sadikoglu et al. (2014)
	Supplier management	Mosadeghrad (2015)
	Supplier relationship	Abdallah (2013)
	Supplier quality	Jaafreh et al. (2012)
	Supplier focus	Mellat-Parast (2013)
	Supplier involvement	Zakuan et al. (2010)
Process management	Process management	Kafetzopoulos et al. (2015)
	Continuous improvement process	Sadikoglu & Zehir (2010)
	Quality culture	Ooi (2014)
	Statistical and quality tools	Wu (2015)
Product and service design	Product/Process design	Shan et al. (2013)
	Design management	Jayaram et al. (2012)
	Product/Service design	Kima et al. (2012)
Employee management	Employee involvement	Parast et al. (2011)
	Human resource focus	Loke et al. (2011)
	Employee relation	Jaafreh et al. (2012)
Customer relationship management	Customer focus	Yusr et al. (2014)
	Customer relations	Kima et al. (2012)
Information and analysis	Information and analysis	Mahmood et al. (2015)

### Quality Management Tools and Techniques (QMTT)

Using implementation tools to design and conduct quality improvement projects for faster and more effective improvement (Ovretveit, Mittman, Rubenstein, Ganz 2017). Quality Management (QM) principles are also studied by researchers as top management leadership, Employee management, Customer focus, supplier management, Quality data and reporting, Process management and innovation, continuous improvement under quality management (QM) practices used correctly, can assure their success to achieve competitiveness for the firm (Clegg et all (2009); Elshaer & Augustyn (2016); Abd-Elwahed (2018). Tools are implemented either rare or not at all (Abd-Elwahed, & El-Baz, 2018), Implementation magnitude of tools & techniques are important for the firm, the degree of the implementation of the tools reveals that only one tool is identified as used frequently is the key performance indicators (KPIs). In addition, the results indicate that the tools supporting design and innovation, such as quality function deployment, design of experiments, Taguchi's quality loss function, simulation, and TRIZ, were placed in the lowest levels of both understanding and implementation (Abd-Elwahed, & El-Baz, 2018). It is necessary, therefore, to increase training in these tools in these industries, especially as there is a relationship between approaches to improvement. It is imperative to review the usage and effect of QM Tools and Techniques on Firm Performance.

The need of Quality Management Tools and Techniques: Quality Management principles implementation requires specific tools and techniques for an organization to achieve success. The quality tools and techniques are in many statistical and Management forms and are applicable in every aspect of business (Pyzdek, T. 2003),(Yang, K. and El-Haik, B.S. 2009), (Uluskan, M. 2016)

Mokhtar et al (Mar 2010) three significant variables defined are Top management commitment, Continuous improvement process and Quality tools were found to have a statistically significant association with new product performance. Abd-Elwahed (2018), selected and studied seventy-four Quality Management tools and

techniques from different academic and practical resources (Uluskan, M. 2016; Sousa, S.D., Aspinwall, E., Sampaio, P.A. and Rodrigues, A.G. 2005; Starzyńska & Hamrol 2013). This was studied for Saudi and concluded, there is a difference in the levels of understanding and implementation of QM tools and techniques. Variable of QO was found and looked into by an author, was quality tools applied on new product and process performance (Mokhtar, Sany Sanuri Mohd, Zien 2010). There should be an increased training on tools, especially as there is a relationship between approaches to improvement and creativity (Zeng, Anh Phan, and Matsui (2015); Kim, Kumar & Kumar (2012).

Another research reflected that there is a difference in the levels of understanding and implementation of QM tools and techniques (Elshaer & Augustyn 2016). Understanding and implementations to be practiced, “*Quality management is not practiced widely or successfully*” (Clegg et all 2009). Tools being used in raility and or superficially (Clegg, Rees and Titchen 2009). Continuous Improvement (CI) tools used and details of which all tools used are not sufficiently studied in length, CI impact on project performance in turn firm performance. No explicit reference available on orientation of an organization on Continuous Improvement tools under Quality Management.

Important point we noted: Review of prior research highlights an ambiguity regarding the impact of Quality Management on competitive advantage which in turn leads to firm performance: 1) There is no direct relationship between Quality Management concepts and therefore quality management as such is not a source of competitive advantage (Flynn et al. 1995; Kaynak 2003), 2) Quality management programs have to be implemented comprehensively to generate competitive advantage (Douglas and Judge, 2001), 3) Only some quality management practices are positively associated with competitive advantage. Organizations may not need to focus on all practices to achieve competitive advantage (Powell, 1995; Dow et al.,1999). Empirically validating the effect of QM Tools and techniques on the influence of Quality Orientation on firm performance will help us clear this ambiguity.

Prior research indicates, there should be an increased training on tools, especially as there is a relationship between approaches to improvement and creativity (Zeng, Anh Phan, and Matsui 2015), (Kim, Kumar V. and Kumar U. 2012). Without knowing the impact of QMITT for each QO construct of the life cycle of a service, it is difficult to generate consistent results. Measuring impact of the tools and techniques used can help firms to predict their performance and in-turn can lead to continued firm performance.

**Emerging Technologies for Innovation:** Research suggests that, in an effort to accomplish good performance, firms should embrace both innovation and quality (Arshad, Wang, Su, (2016). While there are numerous studies explaining the impact of innovation on creating customer value and firm performance ( Richard 1978; Scott 1994; Godin 2006; Kaiser et al 2007; Bulut 2017), very limited research exists probing the role of Emerging Technology Innovation in explaining the impact of QM Tools and Techniques on Firm Performance.

Firms innovation encompasses processes which lead to the establishment or adoption of new production and management tools and models (Fichman 2004). Innovative performance has been employed in many technical (Cagri Bulut 2017) and scientific research studies focusing on two major factors: the environmental and the organizational factors. (Macedo, Liao, Pinho (2017). Intent to Innovate is another area related to QO in this paper.

The ultimate goal of innovation research is to provide guidance to managers on the question of “whether, when, and how to innovate” (Swanson and Ramiller, 2004) it implies on intent, Impact on performance and when to use which emerging technology. On the contrary, it is also studied by authors that medical technology investment alone does not contribute to a significant improvement in hospital service quality (L.X. Li. (1997). Firms Innovation Implementation of a new organizational method in the firm's business practices, in its workplace, to improve the use of knowledge, workflows efficiency or quality of goods or services.

Innovation and Quality Management goes hand in hand. Makridakis (2017) reflects that there will be no special benefit as the advanced algorithm would simply become a competitive requirement for staying in the race. Other emerging technologies like big data (Schonberger & Cukier 2014) offers the opportunity of developing successful algorithms to understand what customers want and as such can be extremely useful for decision makers. The challenge is that both the data and the techniques to analyze them are available to practically everyone interested, turning their recommendations into a competitive requirement. Jankel 2015 states there is therefore probably right, stating that “*computers will never create disruptive innovations*” nor be able to provide. There is dearth of theory explaining how the technology unit of a firm could contribute to the firm's development of ITEP (IT-embedded product) innovations in ways to create customer value and improve firm performance (Taradar & Tanriverdi 2018). Those who will be evaluating emerging technologies will be ahead in the market capitalization. AI technologies to gain the most a successful firms out of their implementation in all aspects of the firm (Makridakis 2017).

In this era of digitization, rising customer demands and expectations are being experienced (Parasuraman 1988). Hence it is essential to be relevant in the technology savvy market, where customer demands innovative service offerings. Usage of emerging technology for innovative use for Quality Management tools & techniques, can foster faster response to the market demands and can help firms to achieve customer delight and in turn firm performance.

**Firm Performance:** Firm performance has been defined by different research with different parameters. Return on Quality, Customer Satisfaction, Long term Profits, Financial ratios (Miles, Russell, Arnold 1995). Superior firm performance (Malhotra (2012); Kohli and Jaworski (1990); Pande et al. (2000), (Deming 2000); Taguchi et al. (2004), Competitive advantage (Pande et al. (2000); Taguchi and Clausing (1990). Firms' long run success comes from creating shared value of services that advance the competitiveness of the firm, and simultaneously advance the economic and social conditions of the communities (Porter and Kramer 2011); Malhotra 2012).

Atalay, Anafarta & Sarvan (2013), stated firm performance is a multidimensional concept also by Murphy et al. (1996), what indicators can be departmental, such as pertaining to production, finance or marketing (Sohn et al., 2007), or consequential such as pertaining to growth and profit (Wolff & Pett, 2006). It can be measured with objective or subjective indicators (Dawes, 1999; Harris, 2001). There are subjective measures of performance from Venkatraman (1989) were adopted because of the difficulty of gathering hard financial data from private companies, in the absence of any publicly available objective data which includes the firms in the sample (Priem et al., 1995; Sapienza et al., 1988). The performance indicators suggested by Venkatraman (1989) measures perceived performance relative to those of the relevant competitors.

Successful performance of a Firm also studied as, it is dependent on business orientation, and is defines as market orientation, sales orientation, entrepreneurial orientation and quality orientation (Miles 1995). Customer focus and continuous improvement are key strategic lever of quality to create better values for customers and ultimately superior financial performance (Russell, Arnold (1995).

Increasing competition and disruption in an international market, makes service firms to think about which Innovative technologies and Quality Orientation approaches to be used to improve their Customer Experience. The moving gap between Customer perceptions and expectations is a direct measure of the quality of service as experienced by the customer (Parasuraman 1988). It will also help improve managerial decision making for consistent service delivery, relevant QM Tools and Techniques to be employed and innovative use of emerging technologies to foster organizational growth and in turn firm performance.

**Small and Medium sized Enterprises (SMEs) :** There are variety definitions of SMEs across the world. Defining SME is a challenging task, as every country has its own definition for a SME. Hasim and Wafa (2002) highlights that this gets further complicated by definitions that varies from country to country and within country as well. For instance, country like India, as per Micro, Small and Medium Enterprises Development act 2006. Enterprises are categorized as micro units, small units, medium units and large units depending on the investment in plant and m/c (Paramasivam & Maresilvan 2013). Firm size is readily available, and managers easily find and share the information on employee size (Pattern 1991; Mohd Osama, 2011; Karagozoglu & Lindell (2004) defined business with 0-99 as small biz, (Bajwa and Lewis 2003) small and medium as 100 and 100-499 respectively. Saffu et al (2008) defined in Ghana as 200 as SME. (Ifindo 2011), defined it as less than 500 in Canada. For the purpose of the above study, SME is defined as a firm with less than 500 employees, it is also consistent with prior research above (Vishnupriya 2015)

### Research Hypothesis :

1. Does Quality-Orientation positively influence Firm Performance (QO -> FM)
2. Does usage of Quality Management Tools & Techniques lead to Quality-Orientation? (QMTT -> QO)
3. QM Tools and Techniques applied in a firm positively influence Firm's Performance
4. QM Tools and Techniques explains Quality-Orientation on Firm Performance
5. Does Firm Innovativeness moderate the relationship between QM Tools and Techniques and Firm Performance.

**1. Does Quality-Orientation of the organization positively influence Firm Performance?** Quality Management Principles and initiatives driven under Quality Orientation composition aims to drive culture of quality, reduce variation through a series of quality control techniques and by streamlining a variety of processes. Such steps often lead to improved efficiency, better customer satisfaction, and shorter lead times ((Sethi and Sethi 2009). As a result, the organization pursues these steps even more enthusiastically, and gradually variation reduction methods get more stabilized and deeply embedded in the organization's routines (Benner and Tushman, 2003). Quality Management (QM) Principles are studied

by researchers as top management leadership, Employee management, Customer focus, Supplier management, Quality data and reporting, Process management (Elshaer & Augustyn 2016). Quality management practices have existed in anfrim and their effect on competitive advantage measured by above average hotel financial performance (Elshaer & Augustyn 2016), From the theoretical perspective, if quality management is seen as a distinctive organizational capability embedded in the firm's business processes, organizational routines, knowledge, and skills it is imperative to have QM principles knowledge and Skills required has an important role on firm performance from quality orientation of the firm (Wernerfelt, 1984; Rumelt, 1991; Teece et al., 1997; Tang and Liou, 2010; Yunis et al., 2013). The applicable tool and techniques for each principle can be looked at from its

impact on Firm Performance and its success. The above argument leads us to study the below research Question:

## **2. Does usage of Quality Management Tools & Techniques lead to Quality-Orientation?**

Continuous improvement under quality management (QM) practices correctly, industrial companies can assure their success to achieve competitiveness for the firm (Abd-Elwahed, & El-Baz, 2018). This is one of the attributes of QO apart from other few. Tools are implemented either rare or not at all (Abd-Elwahed, & El-Baz, 2018), Implementation magnitude is important for a firm, the degree of the implementation of the tools reveals that only one tool is identified as used frequently is the key performance indicators (KPIs). In addition, the results indicate that the tools supporting design and innovation, such as quality function deployment, design of experiments, Taguchi's quality loss function, simulation, and TRIZ, were placed in the lowest levels of both understanding and implementation (Abd-Elwahed, & El-Baz, 2018). It is necessary, therefore, to increase training in these tools in these industries, especially as there is a relationship between approaches to improvement. It is imperative to review the usage and effect of QM Tools and Techniques on Firm Performance. We were led to study this research question:

## **2. Does QM tools and techniques applied in a firm positively influence Firm's Performance?**

Quality Orientation refers to the extent an organization has culture of Quality in Service delivery. Commitment amongst employees and they practice QM Principles (Sethi and Sethi 2009). Quality Management (QM) Principles for QO are studied by researchers as top management leadership, Employee management, Customer focus, Supplier management, Quality data and reporting, Process management (Elshaer & Augustyn 2016). Customer Focus, Continuous Improvement, Team Work, Minimizing Process Variation, Focus on Quality Improvement , Process quality management, Quality design, Reducing variation in processes and routines, commitment to continuous Improvement, Reduction cost objectives, Reduction in cost measures, Internal Customer focus, External Customer focus, System thinking perspectives, being data driven organization, Value to Customers (Achrol 1991), CI & Innovation (Cravens & Woodruff 1987), Proactive (Crichton 1992, Elshaer & Augustyn 2016). Tools are implemented either rare or not at all (Abd-Elwahed, & El-Baz, 2018). Quality Orientation to firm performance is studied in length and metrics of measurements are defined as Return on Quality, Customer Satisfaction, Long term Profits, Financials Ratios (Miles, Russell, Arnold (1995). We would like to assess the mediating effect of QM Tools and Techniques of QO for Firm Performance. This led us to our fourth research question:

## **3. Does QM Tools and Techniques explain Quality-Orientation on Firm Performance?**

Innovation is widely regarded as one of the most important sources of sustainable competitive advantage in an increasingly changing environment, because it leads to product and process improvements, makes continuous advances that helps firms to survive, allows firms to grow more quickly, be more efficient, and ultimately be more profitable than non-innovators (Atalay, Nilgün, Sarvan, 2013). Myers & Marquis (1969), in a study conducted, defined the process of innovation as composed of five stages: recognition of both technical feasibility and demand, idea formulation, problem solving, solution, and utilization and diffusion (Myers and Marquis 1969). one more author used these three Generation of an idea, Problem-solving or development, and Implementation and diffusion (Utterback 1974, Godin 2006). It clearly reflects Innovation for firm performance can be a key aspect. The model postulated that innovation starts with basic research, is followed by applied research and development, and ends with production and diffusion. The precise source of the model remains nebulous, having never been documented (Godin 2006). And Quality Orientation to firm performance is studied in length and metrics of measurements are defined as Return on Quality, Customer Satisfaction, Long term Profits, Financials Ratios (Miles, Russell, Arnold (1995). Above literature led us to examine how does QM tools and techniques can affect Firm performance:

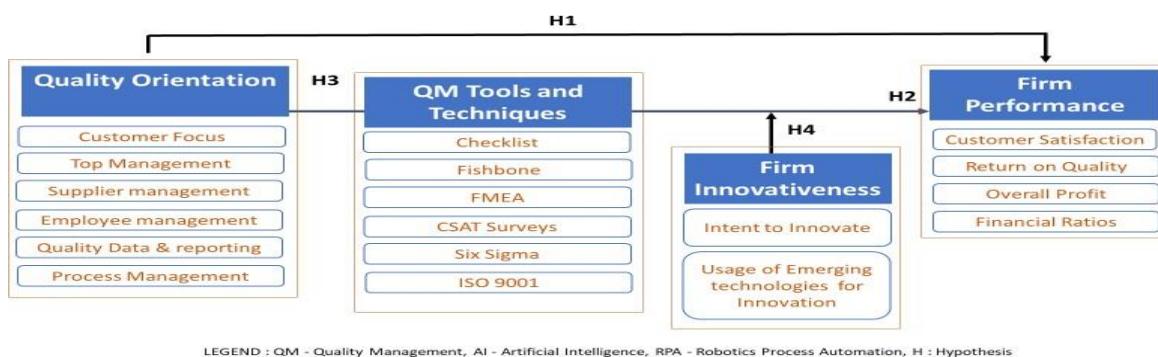
## **4. Innovation moderates between Quality Management Tools & Techniques and Firm Performance**

Emerging Technology have become increasingly important in the development of human therapeutic agents. How developing countries seize this emerging technological opportunity remains a poorly studied

issue in prior literature (Mao-Yu, Li, Hu, & Yi-Tao 2015). The German expansion in late 19th century was owing to superiority of methods that integrated technology and institutions (Kodama 1994). Driven by advances in data analytics, machine learning, and smart devices, financial technology is changing the way Canadians interact with the financial sector. The evolving landscape is further influenced by cryptocurrencies: non-fiat, decentralized digital payment systems, like Bitcoin, that operate outside the formal financial sector (Evangeline & Wilner 2017). The blockchain, that represents an innovation capable of transforming financial services and challenging existing security, financials (Evangeline & Wilner 2017). Emerging Technology helps augmenting Innovation (Greg, Rampolla 2012). It motivates us to review and study the relationship of ET as Innovation for Firm Performance.

## 5. Emerging technologies helps usage of innovation to facilitate firm Performance.

### Our Research Model: Pico1



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