National College of Ireland

FACTORS INFLUENCING THE USE OF BUSINESS INTELLIGENCE TOOL IN INDIAN RETAIL SMALL AND MEDIUM SIZE ENTERPRISES

MSc Research project
INTERNATIONAL BUSINESS

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ABSTRACT

Investigation: The ideology behind this research is to dissect the vitality of Business Intelligence (BI) tools into the operational activities to enhance the performance of Indian retail Small and Medium-sized Enterprises (SME's). The dissertation aids in exploring the crucial factors affecting the operational performance of core business activities. The thesis capsulate the features of implementing BI tools, which not only involve real-time monitoring but also contribute to increased profitability, sales, stakeholder satisfaction. The research unfolds benefits received by utilizing data with integrated BI tools platforms. The dissertation is grounded by an extensive study of existing investigations to understand the characteristics of SME's. However, the research only covers performance management prospects and does not compare different BI tools. In brief, the dissertation research examines how operation performance management can make appropriate decisions to enhance performance with the help of BI tool adoption.

Target Sector: The research has been targeted towards the Indian retail segment, as the retail industry is emerging and developing at a fast pace. Moreover, being a developing country with a steady population and product choice of consumers, there is massive scope in Indian retail SME's to take advantage of the enhanced technology like BI. Indian retail sector contributes a significant share in the national economy, which has been detailed in the dissertation literature.

Methods: This dissertation used a cross-sectional questionnaire survey to collect responses from participants in the retail sector and used IBS SPSS-V25 for statistical Pareto analysis.

Results: The investigation discovered various crucial factors responsible for the growth of BI tools. Research identifies that the factors essential to assessing performance to determine the failure or success of performance management. Moreover, most of the Indian retail SME's know the importance of investing in new computer technology. Research also reasons which restrict BI tool adoption like resource constraints, management skills, capital etc.

Keywords: Critical Success Factor, BI tool adoption, Operational performance, Operational management.

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List of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

Abbreviation	Description
BI	Business Intelligence
BIS	Business Information System
B2B	Business to Business
CRM	Customer Relation management
CSF	Critical Success Factor
EFT	Electronic Financial Transactions
ERP	Enterprise Resource Planning
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IBEF	India Brand Equity Foundation
IMF	Indian Monetary Fund
IT	Information Technology
IS	Information Sharing
MSME	Macro Small & Medium Size Enterprise
OLAP	Online Analytical Processing System
OPM	Operation Performance Management
PM	Performance Management
POS	Point of Sale
RA	Research Aim
RO	Research Objective
RQ	Research Question
SCM	Supply Chain Management
SME	Small and Medium Size Enterprise
PPP	Purchasing Power Parity
WTO	World Trade Organization

Chapter-1 INTRODUCTION

1.1 Research Context

The world is taking a quantum leap from industrialization age to informative age, which is evidential for multinational corporations like Aldi, Walmart, Lidl, Ikea, etc., which are incorporating Information technology (IT) as well as Business intelligence (BI) platform. The core attributes of such a platform are to integrate the relevant database to elevate the performance through actual sales, purchase, and systematic acquisition, which supports the management for improved decision making, which in turn increases the performance level of the organization (Gang, Kai and Bei, 2008).

Technological advancement has also been attracted to the retail sector into its boat, which is leading to evidential growth. Moreover, the Indian retail market is insanely heterogeneous is facing challenging situations in various avenues to survive, wherein international retail outlets are driving competitive advantage and acing due to technological advancement (Dholakia, Dholakia and Chattopadhyay, 2018). On the other hand, Indian retail Small and Medium Enterprises (SME's) are concerned about investment in technology is worthwhile and how BI can aid in improving operational performance to have a competitive edge in the present technological scenario (Leung *et al.*, 2019).

Business Intelligence comes with various pros that yield business performance. However, due to the viewpoint as added work to the system SME's resist BI system considering a complex system that could be an obstacle for work progress. Due to increasing demand, BI tools are not only available at lower prices but also software like Tableau, Dom, and One stream give free services where no initial investment for data analysis is required (Ferreira, Pedrosa and Bernardino, 2019).

The thesis will examine the correlation between operational performance with BI tools and how Indian retail SME's can benefit from integrating BI tool in their business.

1.2 Research Justification

This section attempts to justify a critical question of why it is essential to study Indian retail SME's before the conduct of this study.

The Indian market is one of the most consumer dependent markets where its retail sector (Gary G. Hamilton, 2018) and SME's (Madhani, 2013) plays a crucial role in the overall performance of the national economy. Thus, it becomes essential to maintain and improve the performance of SME's for the sustainability of the industry as well as the economic well-being of the country. This research will be focusing on two significant concerns for retail SME's that are innovation and globalization.

A significant role in the development of Indian GDP could be because of the systemized retail division of India by increasing their proficiency and efficiency (McKinsey Global Institute, 2001). Furthermore, The sector has been a consistent fascination of Foreign Direct Investment (FDI), which grows inflow of capital yet makes a genuine danger to provincial and urban SME's in India (Journal, Business and Info, 2013). Thus, it became very crucial to develop the foremost IT infrastructure and utilized most of the data systems available to sustain in this competitive market. Research also advocates that India being a developing country with a vast population, is moving to mass communism. Therefore, this makes it extremely significant to keep up the progression of Indian retail SME's.

There are numerous factors on which the progression of Indian retail SME's and are reliant on operation performance, Management, Selection of product, Human resources, etc., (Garg, 2010). These factors can be classified into various groups as soft factors and hard factors that have been briefed in the literature review. Furthermore, exploration of research suggests various Critical Success Factor (CSF) impacting Indian retail SME's stated as marketing, inventory turnover, throughput, product diversity, etc. (Azad, Zarifi and Hozouri, 2013). The thematic method will be used to approach the subject while taking a literature study as a secondary data and questionnaire survey as primary, which will be validating the research.

1.3 Research Problem Definition

The increase in technology has now given the new competitive environment between organization; technology offers access to new players the opportunities to contend, sustain in the market, and makes present market pioneers rethink their position in the market (Chao, Yang and Jen, 2007). That's why the BI system extremely resourceful of processing the existing data and taking the most benefit from it becomes a very crucial aspect sustaining and increasing the performance of any SME.

The emphasis of the suggested model in the dissertation is to examine information about performance management, which is majorly involved in the operation level. This will help in reducing different variable factors by a selection of operational performance. Moreover, choosing a specific division can lead to common elements for the retail industry to inspect the return. Retail share a standard operational environment since, all retailers follow the almost the same channel of distribution like customers, suppliers, wholesaler, etc., this help to generalize the study for most of the retail SME's.

BI tools are acknowledged for assisting in complex data in valuable informative form, which helps in decision making (Ranjan, 2008). This exploration originates from the prospect that BI tools can have a significant impact on providing a backbone for retail SME's in India (Bhatnagar Ranjan, 2011). This study will help in assisting operation functioning within the Indian retail sector as management can take advantage of these tools for increasing performance, within most of the retail industry.

1.4 Research Aims, Objectives and Research Questions

Based on the above consideration about the research context, the research problem identified, and the literature review conducted, this study identifies a few Research Aim (RA), objectives, and questions for further investigation, which are all represented and addressed within this section.

1.4.1 Research Aims (RA)

RA1: To explore the usage of BI tools amongst retail SME's in India.

The first research aim of this study is to explore the usage of BI tools amongst retail SME's in India. To attain this Research Aim 1, the research explores the significance of adopting BI tools in retail SME's so as to enhance operational performance. Indian SME's need to develop a continuous strategy to sustain in this competitive market, as discussed above, Information Technology (IT) strategy and capabilities help in improving the functioning of SME's. However, most of the SME's are restricted to barriers like capital and human resources that create uncertainty in selecting appropriate IT for the corporation, which will be discussed in RA2.

RA2: Identify barriers that obstruct the usage of BI tools within retail SME's.

To attain Research Aim 2, the research is done from various analysis from numerous paper which involves corporation understanding the benefit of BI tool, Limited access to information, lack of processing data, infrastructure, capital, etc. To do so, operational performance or retail SME's have been analyzed to find out factors that are most important for the company. This analysis will help in understanding the factors which can support the operational performance of the corporation.

1.4.2 Research Questions (RQ)

To support the Indian retail sector, it is essential to monitor the operational performance of the sector. Moreover, to do so, the factors responsible for the successful operation must be identified. The research will be focusing on factors that influence operational performance within retail SME's. It is very crucial to analyze BI tool adoption in the retail sector as it helps in decision making, which intern helps in enhancing operational performance. Therefore, this study aims to address two critical research questions as presented below:

RQ1: What are the factors that affect the implementation of BI tools in Indian retail SME's.

RQ2: How BI tool adoption Scan enhance operational performance in Indian retail SME's.

1.3.3 Research Objectives (RO)

To determine the research question, the thesis will be investigating characteristics of retail SME's, the notion of operation performance, model for adopting BI technology as well as the BI tool feature. As, it is known that similar SME's Industry shares similar strengths like Flexibility, Quick response, Decision Making, and similar weakness like restricted resource and inefficient management decision. The research will consider all retail SME's industry in the same factor. To attain these questions, RQ1 and RQ2 study has defined the following objectives.

RO1: Examine the opportunities and need for using BI tools in Indian retail SME's.

RO2 Find out the factors that affect the performance of retail SME's.

RO3: Make the questionnaire to analyze the crucial factors that can help in enhancing the operational performance of retail SME's.

1.5 Research *Design*

The research framework is a blueprint assisting the thesis for attaining the RO, where it decides exploration of the target, research describing, planning, and advancing method. The study focuses on accomplishing RO1, and RO2 stated above with the help of a literature survey which will lead to RQ1. The RO3 the be covered by a quantitative questionnaire survey which intern will help to ascertain RA1 and RA2. The research focuses on exploratory analysis, which inspects the research problem first to fulfil the objectives.

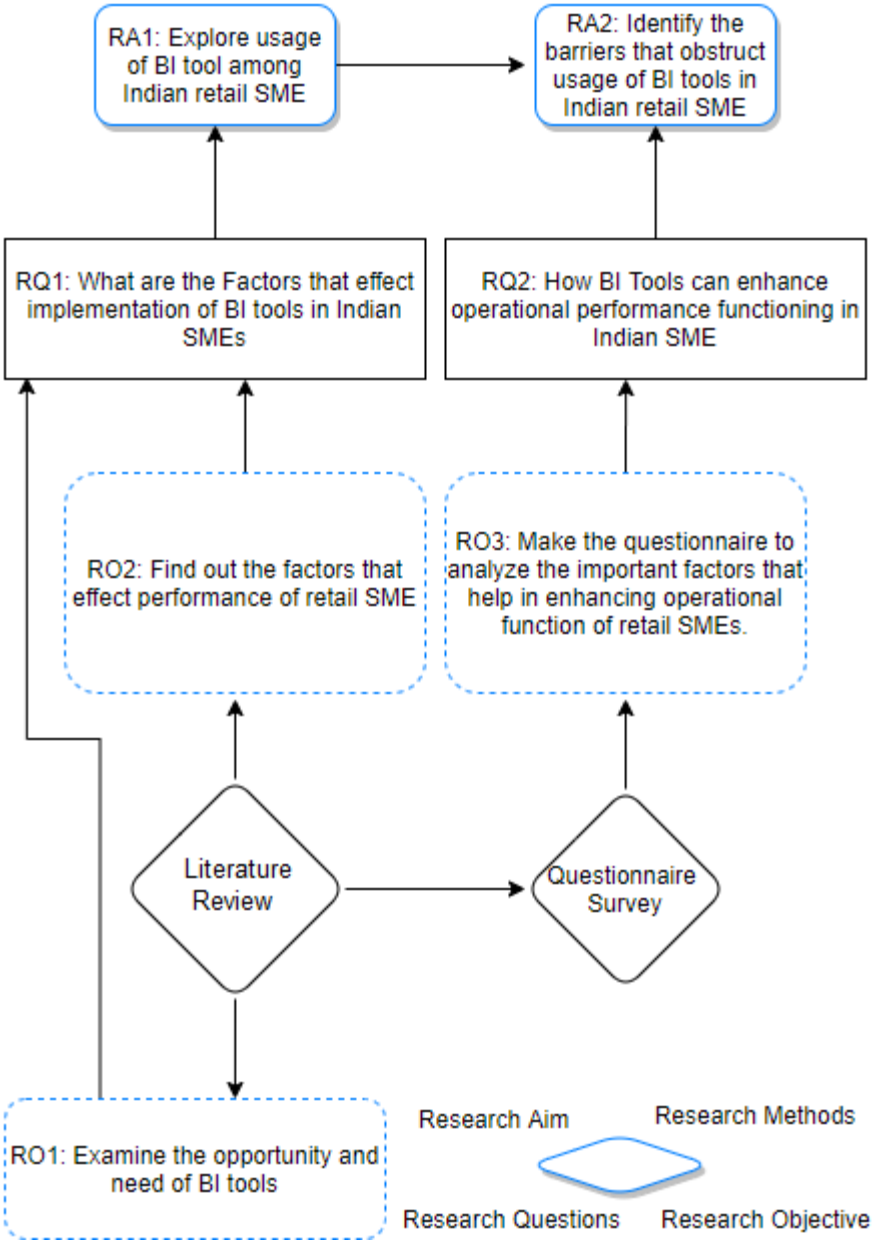


Figure 1. 1 : Research Design Framework

1.6 Summary

The introduction chapter addresses the foundations for the exploration of the focused topics of the study, including explaining the reason for the selection of research topics describing the research scope and the adopted research framework. Furthermore, the research aim, objectives, and questions have been outlined and explained in this chapter. The research scope has been identified by reviewing previous papers, which also helps in setting up the foundations for exploring the research topic of this study.

Chapter-2 LITERATURE REVIEW

2.1 BI tools Introduction:

At the very first, Business Intelligence was connected to an automatic intelligence system for allocating data into diverse units of government, scientific, or industrial corporation (Luhn, 1958). In the year 1989 definition of BI was given by Howard Dresner as “a broad category of software and solution for gathering, consolidating, analyzing and providing access to data in that lets enterprise users make better business decisions” (Karim and Box, 2011).

More than 34 publications attempted to justify that BI massively contributes towards better decision making for any organization before Howard Dresner defined BI. Given are the definition of BI involving tools and techniques which is being utilized for purposeful data and charts.

- “The acquisition of information, often by the use of technology, about one's own operations and those of one's competitors” (Karim, Pg, 202, 2011)

- “The mixture of the gathering, cleaning and integrating data from various sources, and introducing results in a mode that can enhance business decision making” (Karim, Pg, 198, 2011)

In mid-1980, the concept that computers can be a source of stimulating human intelligence as artificial intelligence came into existence by Rhines. It acquainted the organization with predefined conditions and aimed to optimize the data for relevant utility, particularly for coming in parlance with domestic and international competition (Doloc, 2019). Business and people requirement is one of the crucial factors to consider when it comes to capitalizing business for targeting technological advancement (Al-majali and Kingdom, 2013). Hence knowing the requirements will make tasks at ease for data analysis, technology, and management.

2.2 Retail SME's in India

Report making is a cumbersome task yet most core aspect of any organization, where comes the role of BI tool which retrieves relevant data from a large pool of resources in the form of journals and visuals which makes decision making a lot easier task. Growth and expansion of small and medium-sized retail firms in India are the resultant of the given effective implementation of such tools.

2.2.1 Region Background

India has become the fourth-biggest economy today from being the tenth biggest economy in terms of Purchasing Power Parity (PPP) (Abheek Singh, 2011). The purchasing power of Indian consumers as per the Indian Monetary Fund (IMF) is expected to grow up to 10.568 USD (Deloitte, 2019). With the increase in the purchasing power, the retail industry is also going to flourish, resulting in massive competition amongst the country as well as FDI. In 2020 utilization is reaching its topmost up to $3600 billion from $1824 billion in 2017. This represents more than a 10% increase in the nation's GDP and 8% of jobs in the country. Moreover, the growth in the purchasing power retail industry is also going to flourish, resulting in massive competition amongst the country as well as FDI.

India – Income and demographics

	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E
Nominal GDP (USD billion)	1,856	2,036	2,089	2,262	2,534	2,695	2,801	3,226	3,461	3,822
Population (million)	1,279	1,294	1,309	1,324	1,339	1,354	1,369	1,383	1,397	1,411
GDP per head (USD at PPP)	5,249	5,679	6,124	6,567	7,054	7,686	8,336	8,922	9,689	10,568
Private consumption per head (USD)	835	913	924	1,003	1,115	1,175	1,221	1,381	1,466	1,598
No. of households (million)	236	239	243	247	251	255	259	262	266	270
No. of households with annual earnings above USD 5,000 (million)	80	90	96	108	126	138	149	173	188	206
No. of households with annual earnings above USD10,000 (million)	17	19	21	24	31	36	41	54	64	79
No. of households with annual earnings above USD 50,000 (million)	0	0	0	0	0	0	1	1	1	1

Source: Economic Intelligence Unit (EIU)

Table-2. 1 : Indian Demographics report

(Singhi, A.; Mall, A.; Mathur, R.; Bajaj, 2015)

2.2.2 Increasing Market Size

The retail industry of India is $950 billion and is expecting to grow up to $1.21 trillion in 2001 (Baston Consulting Group, 2020). Furthermore, from BCG analysis, we can see there is an increase of 12% trade while modern trade, like eCommerce has been getting double every year since 2005, as shown in figure 2.1 (Singhi, A.; Mall, A.; Mathur, R.; Bajaj, 2015). Modern organized trade is expected to be 21% in 2020, which was only 3% in 2005 (Nordea, 2020)

By the year 2020, Brick and Mortar (B&M), which is offline revenue of Retailers in India, were predicted to upsurge from Rs10,000 to 12,000 crores, which is $1.390 to $2.770 billion in 2020. Although, due to the current pandemic in 2020, there are chances that the retail revenue will comparatively lower than expected (Deloitte and FICCI, 2018). In India Business to Business (B2B) eCommerce market is predicted to reach $700 billion, and e-commerce retail sales are expected to reach $120 billion by 2020 (Nordea, 2020). With the rapid increase in investment and internet users, India's eCommerce market is expected to be one of the rapidly developing e-commerce markets of the world.

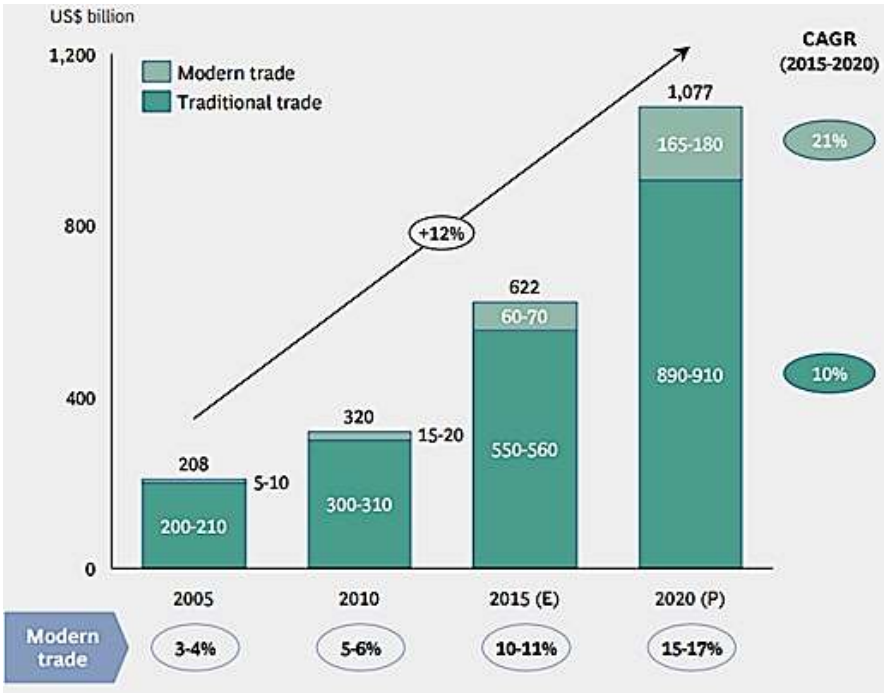


Figure 2. 1 : Increase in Trade of In Indian market

(Singhi, A.; Mall, A.; Mathur, R.; Bajaj, 2015)

According to the India Brand Equity Foundation (IBEF), Online business is the quickest developing business market driven by technological development and has reached customers. This made it very clear how technology can help in a growing business. Start-ups are rising in the eCommerce platform to reach mass customer requirements.

Increasing value for International brands and purchasing power of customers has lead to the rise of the luxury market from $23.8 billion in 2017 to $40 billion in 2019 (McKinsey & Company, 2007).

Indian retail industry is still in growing stage (Deloit, 2018) retail food and grocery sector are expected to value $360 billion, which is around 65 % of the total retail.

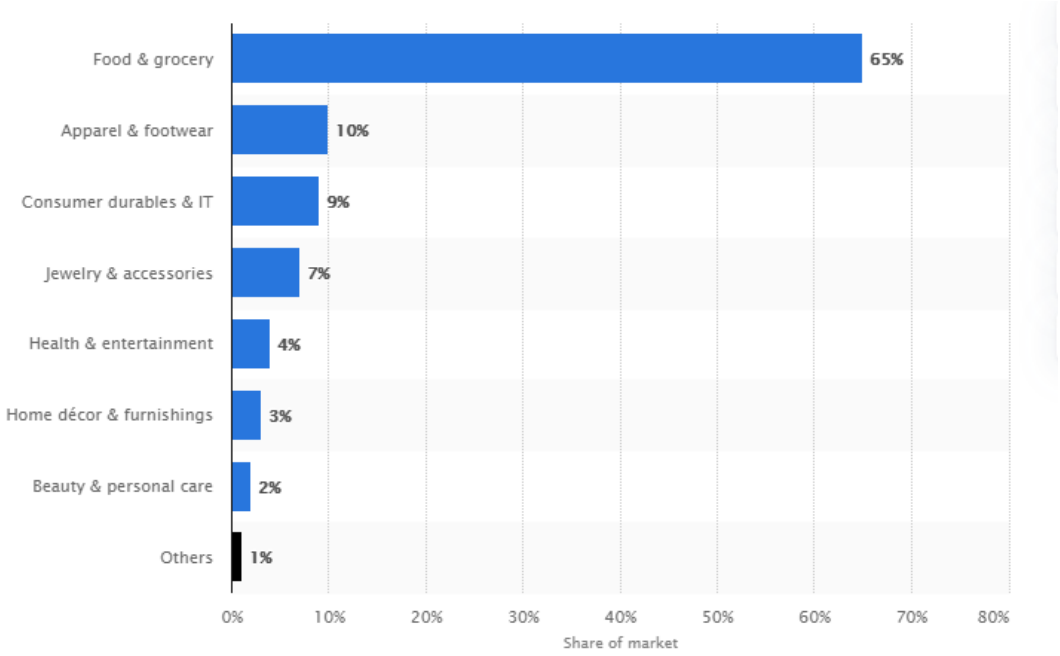


Figure 2. 2 : Distribution of the retail market across India in 2018, by category (Deloit, 2018)

2.2.3 Importance of SME's and Retail Industry in India

According to Aggrawal, 2007, one of the reasons behind the increase in employment, Real state growth, development of infrastructure, and increase in income in the Retail Industry. Revolution of traditional form to a new kind of retailing like supermarkets, malls, unique stores, eCommerce, department stores have impacted in increasing consumers and product range (Jhamb and Kiran, 2011). The increase in purchasing power and format output has led to a change of traditional market retail format into a new appearance and expansion of the modern supermarket format (Hino, 2014). An increase in customer requirements, brand recognition, and demand for goods have attracted various FDI in India in recent years (Shukla and Jain, 2007). However, this FDI is giving tough competition to retail SME's eyeing their market presence in the market.

Nonetheless, Indian retail SME's have continued to grow as 58% of the Indian population is dependent on Agriculture, Forestry, and Fishing, which is a total of $265.51 billion as per the 2019 Indian Brand Equity Foundation Report (Will Poole, 2020). Moreover, an increase in overall imports from 1957 to 2020 has suggested that retailers have managed to sustain in Indian markets (Dholakia, 2020). Which comprise, the Indian retail industry is seen as a crucial economic sector that might stimulate the development of the Indian national economy. For this reason, it is essential to research the topic as enhancement in retail SME's supports the performance of the national economy.

On the other hand, SME's play a very crucial role in the profitability and maintenance of the Indian retail industry. SME's contributed a total of 50% of the fabricated items and give around 40% employment workforce in India. The number of SME's in India was marked 63.39 million until 2019, which was the world's second-highest SME's after China (McNamee *et al.*, 2003). Thus, we can say that SME's play a huge role in the Indian economic system, which is around 14% of GDP (Kishan, 2014). There are also other reasons to say SME's play a crucial role as they are more flexible as well as receptive than larger firms. Moreover, Various more significant business is supported by small SME's (Sonne, 2012).

There are various definitions of SME's around the world, although it is evident that SME's are distinguished from other enterprises by their limits viz., overall profit, staff, balance sheet, annual turnover, etc. which are mostly defined by government organizations. Limits of these boundaries may differ in countries; thus, there is no defined definition of SME's (Mukhtar, 1998). Financial Express India 2019 defines Small enterprise are those who have annual turnover between Rs.4 Crore to Rs.75 crores and medium enterprise turnover range between Rs.75 crores to Rs.250 Crores (Pattanayak, 2020). However, Criteria for SME's manufacturing and service division depend on the investment which is represented in table 2.2 (Ministry MSME, 2019).

PAST LIMITS OF MSME			
CRITERIA = INVESTMENT IN PANT & MACHINERY			
CLAASSIFICATION	MICRO	SMALL	MEDIUM
Manufacturing Ent	Investment	Investment	Investment
	less than 25 lakhs	Less than 5 crores	Less than 10 crores
Service Enterprise	Investment	Investment	Investment
	less than 10 lakhs	less than 2 crores	less than 5 crores
REVISED LIMITS (Govt. Economical COVID19 Norms)			
COMPOSITE CRITERIA = INVESTMENT IN PANT & MACHINERY			
CLASSIFICATION	MICRO	SMALL	MEDIUM
Manufacturing & Services	Investment	Investment	Investment
	Less than 1 crore	Less than 10 crores	Less than 20 crores
	&	&	&
	Turnover	Turnover	Turnover
	Less than 5 crores	Less than 50 crores	Less than 100 crores

Table-2. 2 : MSME classification India (Perez-Uribe, Rafael, 2020)

Table-2.2 sets the criteria for MSME Classification in India according to the latest reforms. Moreover, the cross-sectional questionnaire survey of SME's is done to differentiate the survey participants to be retail SME's specific.

2.2.4 Critical Issues faced by SME's of India

SME's are reported to undergo various problems which is majorly reliant on the social as well as economic development in the country. There are numerous problems associated with SME's in Indian economy, some of them are stated below (Sharma, 2015):

- It is challenging to get credit while competing with international brands and products with low-interest rates in India being a developing country. Recognizing appropriate technology for assistance in operation, investment, and providing technical support is very difficult for SME's
- The failure of SME's to provide generous credit terns for the product sales and experience of management, beneath capitalization & administrative regulation.
- Absence of proper training, testing facilities, promotions, skill formation, management practice, and lack of information about government schemes and modernization techniques.

The combination of all these has impacted SME's operations, concluding that SME has no other option except to compete, which makes this research critically important. As these CSF impact, SME's adversely and make them fight for survival.

Problems		Sources
Financial Problems	Lack of working capital.	(Nehru, 2012), (Kumar, Bhatt and Murari, 2020), (Sharma, 2015), (Garg, 2010),
	Lack of Credit.	
	Lack of awareness of financial schemes.	
	Difficulty in getting bank finance.	
	Failure to gain finance.	
	Dearth of collateral.	
	Lack of management.	
Infrastructure problem	Procedural bottlenecks.	(Kumar, Bhatt and Murari, 2020), (Jhamb and Kiran, 2011)
	Poor infrastructure.	
Regulatory Problems	Expensive monitoring system.	(Sharma, 2015), (Deloit, 2017), (Tara and Sanath Kumar, 2016), (Singhi, A.; Mall, A.; Mathur, R.; Bajaj, 2015)
	Dependency on larger company.	
	Time lag between Payment.	
	Dearth of credit policy.	
	No regulation policy of SME's.	
Information problem	No Information symmetry.	(Kumar, Bhatt and Murari, 2020), (Garg, 2010)
	Inefficiency to collect data.	
	Lack of information sharing.	
Technological and marketing problem	Nonskilled labour.	(Dey, Malesios and De, 2020), (Rastogi *et al.*, 2018),(Rastogi *et al.*, 2018),(Nehru, 2012)
	Lack of competition due to unawareness of technology.	
	Problem associated to adopt technology.	
Policy	Reservation Policy.	(McKinsey Global Institute, 2001), (McNamee *et al.*, 2003)
	Supply-demand driven policy.	

Table-2. 3 : Summary of SME's Problems (various Sources)

SME's in India face various problems in different fields. Table 2.3 summarises SME problems.

2.2.5 Disadvantage of SME's in India

SME's encounter different problems while comparing with huge ventures, for example, SME's faces a dearth of financial resource, information, infrastructure, as illustrated in the above section (Ghobakhloo *et al.*, 2011). On the other hand, large corporations underutilize employee's capability, lack of enthusiasm, corporate politics, etc. The principle disadvantage of SME's over large firms is the lack of financial resources and human resource constraints (Taplin, 2006). This weakness leads to a dearth in technical expertise, information, specialized knowledge for the development of business. Henceforth, lack of resource is probably the major weakness of SME's which distinguish them with large SME's.

SME's lack behind as they are not able enough to execute the right technology in the firm due to constraints in resources, which does not aid the proper guidance (Mullins *et al.*, 2007). There is no doubt that this has created a significant impact in the right data investigation and analysis activity, which limits the firm's capability (Perez-Uribe, Rafael, 2020). Subsequently, large corporation relies upon specialized data sources to collect information for yearly review reports (Hasse, Fraco, 2011).

Decision-makers in SME's get dependent on other sources to gather advice and reference as they have limited information (McNamee et al., 2003). To gain the right knowledge, most of the decision-makers in large firms use the intellectual simplification process in their data search exercise.

Administrative management capabilities and skill are other shortcomings other than resource constraint which differentiates SME from a large enterprise. The common reason for the disappointment of success in SME is lack of management skills (Chaston, 1987). The government is encouraging the development of management skills by providing SDMS facilities and training partners for retail SME's in India (Tara and Sanath Kumar, 2016). The government has also defined seven strategic tasks. It is, encouraging policies to support SME's which include interest-free loans, new entrepreneur training programs, and various other support systems (Kensuke tanaka, Kojima, 2016).

Lack of Capital

- Banks do not provide any financial support to SME's due to risk involved.
- New finance methods are not known or new to the country.

Lack of Managerial abilities

- Improper training and a lack of exposure to managers affect decision-making capabilities.
- Lack of resources like workforce, capital, etc. creates a hurdle for managing SME's.

2.2.6 SME's Threats:

SME's in India are increasing at a rapid rate; recent data shows that more than 50 million SME's exist in India. SME's have contributed more than 40% of exports and have created millions of job opportunities. However, SME's are unable to cope up with the speed of technological development. Continuation of obsolete technology without any innovation has led many corporations out of competition league and are barely surviving.

The SME's development is dependent on the availability of the financial resources of which they possess a deficit. Even though the government has various financial schemes that aid SME's, they are still not able to survive in the fast pace of technological development.

2.2.7 Training Needs

Every expansion of a successful company is embedded with efficient training. Moreover, the increase in administration, as well as regulation, has forced corporations to focus more on training and preparation to make sure all the necessities of the organization are fulfilled (Green, 1996). On the other hand, the training for large enterprises is crucial, although the availability of resources makes it much easier to accomplish proper training as compared to SME's. In a large corporation, training cost is decreased as it is spread amongst a higher number of workers as compared to Small corporations (Harland *et al.*, 2007). Thus, this makes it less expensive for a huge corporation to deliver employees with high skills. Even most of the top management in small SME's are taken from large corporations due to their skills and experience they have attained over a period. The vast difference in training needs is because of the size of the organization; thus, training needs for a large enterprise may not work with small firms (Sambrook, 2006). This concludes that training needs for SME's are more and difficult than large enterprises creating an obstruction for the development of employee skills.

Training threats	Weaknesses in time management.
	Uninterested in higher education.
	Marketing, finance, and management expertise are not identified
Development threats	Weaknesses in personal analysis, reflection, developing strategies and analysing results.
	Limited knowledge acquiring activities.
	Only nine out of 800 SMEs have used consultants before.
	Usually not prepared for further development and fundamental changes over the next few years.

Table-2. 4 : Threat of SME's

Table 2.5 represents evaluation of threats associated with training and development.

Evaluation of various research demonstrates that most of the training needs of managers and employees are not satisfied or fulfilled in most SME's in India. Lower performance and

business are often caused by the clashes amongst goals and operation decisions due to inefficient managerial skills that are interrelated with a lack of training and experience. Therefore, employee skills are one of the most critical factors for improving SME performance and business development which impact growth. It becomes very crucial to define SWOT analysis for the SME, as shown in the table 2.5, to identify factors responsible for the failure of SME's.

Strengths	Weaknesses
• Flexibility • Quick response	• Managerial weaknesses • Limited resources
Opportunities	**Threats**
• Innovation • Globalization	• Training needs • Development needs • IT investments

Table-2. 5 : Overview of SME's SWOT analysis.

2.3 Factors for effective implementation of BI tools

A review of the existing literature indicates several factors that can have an impact on the process and outcome of the implementation of BI tools. This section seeks to identify and address the key factors that are derived from the literature review and identified for further investigation.

2.3.1 Business Correlation

Business Intelligence Tools are notably affected by the aid of business linking or correlation. The interlinking with the business elements is essential to proclaim a well-detailed problem and process, and this further supports the alignment of the needs of the business. The tools of business intelligence are developed to take into consideration the diverse quantities of data that are assembled over time by the respective enterprise. This linking of business supports a fundamental juxtaposition between things that affect the implementation process of the business intelligence tools in the various small-medium sized enterprises—devising this tie-up with respect to activities, data, functions, and fulfillment succour the business organization in leveraging the subsisting resources to enhance the level of profits. As opinionated by (Begenau, 2019), linking in an organization can improve the process of decision making for the future course of action. Thus, this interlinking

with support the evaluation of the critical indicators and further governs the handling of the operations of the business.

2.3.2 Directives and top management

The top management and directives are responsible for any business to enhance the efficiency and productivity of the employees. These directives and high management systems help to provide sponsorship to several assets of the business and guide the employees to enhance their performance. The managers in the industry assist their subordinates at different levels of their work and motivate them to enhance their performance in the business (Singh, 2019). The managers present in the business have different hierarchical levels, and according to these levels, their roles are divided into the business. These management systems include top management, middle management, and low management who work under the directives of the business and follow the guidelines provided by them. The prime role of these directives and top management systems of the company is to effectively implement the several business intelligence tools in the firm to enhance the efficiency and productivity of the employees and the various services rendered by them.

2.3.3 Project figurehead

The project leader captivates the team of the firm, and they are crucial in motivating them to attain the vital goals of the organization. They supervise the needs of the organizational members and support an effective and productive workplace for them. The execution of the different tools of business intelligence is not possible in the absence of the project figurehead. According to Madsen (2019), the figurehead of any project is responsible for the process of significant and effective communication within the members, and they are crucial in interconnecting them with the enterprise goals and objectives. They further warrant that their team associates are focused and are devoted to addressing the approaching opportunities as well as hindrances. The application of such tools in small-medium sized enterprises is possible in an effective manner if the project leader keeps a track on the activities running in the firm and aids the members with utmost positivity and motivation. The devised task can be empowered and executed significantly by

the abetting of the respective project leader. They provide less palpable and physical support and more emotional hold up to ensure that the members of the firm are dedicated to accomplishing the aim of the firm. They are also responsible for strengthening and enriching the workplace environment, which will unveil the best of the members of the SME's.

2.3.4 Plan of Action

The plan of action or the business strategy refers to the long-term blueprint of the projects and ideas that are supposed to be implemented in the project to improve their performance in the market. As opined by Fernández-Vázquez, 2020, these plans of action are considered as one of the significant factors for the effective implementation of the BI tools as they are responsible for the progression and development of the firm. Several kinds of strategic measures and activities that are executed in a firm have a direct relationship with the development of plans and schemes in the business and help the firm in achieving the pre-decided targets. These plans of action include several strategic approaches like the development of the products or services, the market plan, and the ideas of the various employees working in the firm that present their strategies to improve the company's performance and efficiency and gain a competitive advantage over all its market competencies. The objective of the BI tools is to store the report and essential facts and figures of the small and medium-sized enterprises in application software that may be useful in developing strategies in the future. The plans of action are also mentioned in these tools and represent the several strategies and plan that businesses shall implement in them to enhance their market value and earn a significant profit share in the market.

2.3.5 Change Management

The approach of change management techniques and tools assists the people fringe of alteration to attain the respective objectives of the business(Liang *et al.*, 2019). The BI tools and its implementation process is influenced by the approach of change management. This change management entails the various implements of the organization that focus on supporting the effective individual transformation through the assistance of advocacy and commutation of the modifications. They

assist the firm employees to embrace the devised alteration in their regular activities and involve significant steps.

The practice of change management diminishes the threat related to the imposed change and its probability of being rejected for the respective enterprise. For the successful imposition of change, management requires a reduced level of intricacy and enhanced flexibility and pliability. The management aims to support and implement effective strategies and implements for significant change management, and this change and its governance is pivotal for the effective implementation of the different tools of Business Intelligence. Change execution and evaluation are influential in this administration of BI tools because it supports acquisitions and the unification of the essential aspects of the implementation process. Effective change management evaluates the revenue of change and disposes of the own resources with the firm to significantly reinforce the modification. This alteration and modification help in assisting the schedule, possibility, interaction, support and budgeting of the execution process of the tools of business and its appropriate management can reduce the consequences of alteration in the associated organizational members that is the stakeholders, clients, employees and so on.

2.3.6 Learning and skills

The learning and skills in the business are one of the main aspects to enhance the proficiency and productivity of the firm (Sagala and Effiyanti, 2019). It also encourages the business to earn significant profit shares in the market. The BI tools present for SME's promote the factor of learning and skills in their firm by recruiting highly qualified employees to support the mission and vision of the firm, and the better and skilful decisions are made by the managers. The educational qualification and learning of the employees are also considered as a significant factor because of help in entering the valuable data and report of the business into the systems of the Business Intelligence tools and keep a record of the decisions, products, and revenues collected by the company in a particular year.

The several kinds of learning and skills required by the employees of the small and medium-sized retail industries including communication skills, delegation skills,

leadership skills, analytical skills, and many more. These also include the educational qualification of the employees, and they must be specialized in some of the other subjects of the business in which they are supposed to perform efficiently. The practical implementation of the learning and skills in the business firm is considered as a significant factor for the Business Intelligence Tools as they are helpful in developing strategies for the business and assist the employees making decisions that are regarded as the crucial ones for the effective development of the firm. In case of ineffective application of this factor, the business firm shall not be able to conduct the activities and plans in the business and due to which the firm shall fail miserably in the market.

2.3.7 Information and technology

The practice of Information and Technology in the valid enactment of the BI tool is significant. The assistance of information and technology is influential is solving the drawback and of the business hindrances. The BI tools are developed by the aid of the technological system and data. These tools are crucial in transitioning raw data into relevant and useful information. The assistance of technology and information has supported the small-medium sized enterprises to transform the firms for the local level to the global level (Aithal and Madhushree, 2019). The backing of informational technology enhances the process of communication, and it is crucial as well as critical for organizational success. The prime role and benefit of the aid of IT is its capability to support both the internal and external processes of interaction smoothly. They also enhance the thinking of a plan of action, and as a result, this increment the level of competition to give a competitive advantage. The effective implementation of the relative factors of BI tools is pivotal. In the absence of such factors, it is challenging to attain the common objectives of the enterprises and BI tools implementation.

2.3.8 Environment

The environment in the business refers to several aspects of the business classified as external as well as internal factors that affect the efficiency and performance of a business. The business environment is considered to be a significant factor for the effective implementation of the BI tools as they are helpful in the accumulation of data of the several resources utilized in the business and the cultural, technological and other aspects that affect the business like, revenues generated during the various levels of the company (Gaganis, Pasiouras and Voulgari, 2018). There is an association formed between the BI suppliers in the firm and the several associates working under them based on their past experiences and the report submitted in the information system of the BI tools in the form of data, graphs, and visuals that affect the business environment and the employees working in it.

The Business Intelligence tools accumulate the information associated with the enterprise to keep a detailed record of the functioning and processes of the Indian retail small-medium enterprises. The diverse factors of implementation of business intelligence tools are influential for the firm to empower its operation in the path of organization accomplishment and further acquire organizational goals.

2.4 Operational Performance:

2.4.1 Introduction

Performance Management is one of the key concepts for improving performance in SME's. It is executed at 3 different levels, i.e., Strategic level, Operational level, and Individual level (Forslund, 2012). The strategy level includes enterprise strategy development at a functional level (Sum Chau, V. and Witcher, 2008). Operational level management involves on-time activities and analysis and reporting performance (Koch, 2011) and individual level; it requires HR activities and employees working towards enterprise mission. The retail industry is divided into various sub-sector based on product division like electronics, grocery, auto spares, etc. each product division functioning needs a different strategy; hence, it is not possible for strategic performance research. On the other hand, Operation Performance Management (OPM) involves monitoring and analyzing data, which is real-time to indicate performance in operation. BI is a suitable solution which supports Operational performance in SME's (Bagheri, Kusters and Trienekens, 2015). Thus, OPM will be covered in the research thesis, which includes retail operations, which can be benefited from BI integrating knowledge collection and storing data to assist decisions for operations.

There might be different strategical approaches for the management of any retail industry like increasing the profit margin, Increasing the number of customers by reducing price, gaining various wholesalers or suppliers, decreasing the quality of the product, etc. Moreover, it is challenging to focus on one strategy as all retail SME's target different performance operation. On the other hand, OPM involves making charts, collecting data, monitoring, and find indicators affecting performance in any business (Bagheri, Kusters and Trienekens, 2015).

2.4.2 Factors affecting BI tool adoption

The business intelligence or the BI tools are the software applications involved in any organization that helps in the accumulation of different sets of data and processes these extensive unstructured data into simpler forms, which helps in providing the detailed information of the organization (Richards, G., Yeoh, W., Chong, A.Y.L. and Popovič, 2019). These business intelligence tools comprise several strategic plans and goal-accomplishing techniques that analyses the data and account report of the organization and later implement strategies in favour of the organization's success.

The different factors affecting the business operational performance through the BI tool's adoption include:

- **Enterprise reporting-** The factor of enterprise reporting refers to generating and accumulating the different sets of data of an organization through visuals and numerical figures that provide the detailed report of the firm.
- **Data Mining-** The data mining is a set of practice which analyses large sets of primitive databases and generates new sets of information from it.
- **Analytics-** The factor of analytics refers to the examination of the raw databases and derives conclusions from these pre-existing data and generates findings through it.
- **Benchmarking-** The benchmarking factor refers to the evaluation of several business intelligence tools of present and future and develops strategies according to it (Richards, G., Yeoh, W., Chong, A.Y.L. and Popovič, 2019).

2.4.3 Performance management policy

The performance management policy is implemented in the Indian Retail SME's to structure framework, which shall help in the management of employee's performance and improve it for the organization's efficiency and productivity (Audenaert *et al*. 2019). These performance management policies include several tools and techniques that fulfill the legal and ethical requirements of the organization and hence enhance the efficiency and performance of the employees. The comprehensive performance management policy includes different stages:

· **Planning-** In the first stage, the SMART (Specific, Measurable, Achievable, Relevant, and Time Based) targets and objectives are set for the individuals working

in the organization that is supposed to be achieved during a specific time period. This motivates the employee to enhance their efficiency and productivity at work (Audenaert *et al.*, 2016).

- **Managing-** The managing stage in the performance management policy helps the employees in maintaining a track record of the several activities conducted within the organization for the improvement of employees' performance. This is also useful for building a proper communication between the employees and their managers.
- **Reviewing-** In this stage of the performance management policy, the reviews and feedback of the several employees are collected by the manager and then evaluate the findings to analyze the benefits of the implementation of this policy. It provides detailed information on the overall strategy and the success ratio of implementing it in the business to enhance the efficiency and productivity of the business through the improvement in the performance of the employees.
- **Rewarding performance-** After the completion of the several stages of the performance management policy, the manager conducts an analysis test through which they assess the individuals who performed better at every step of the process. The identification of the employees is done by examination of their efficiency and productivity report within the organization. The best performing employees are then rewarded as per their extent of excellence in the firm.

2.4.4 Customer Feedback

The information provided by the customers that entail their experience regarding the several goods and services purchased by them is referred to as the customer feedback (Boss al, 2019). This helps the firm to receive a review of its products that reveals the extent of satisfaction of the customers regarding a set of products or services. This is useful for the firm to amend the requirements in the products and develop it in a way that they meet the customers' satisfaction (Boss al, 2019).The customer feedback asset of the firm reveals the areas by which the customer is satisfied or dissatisfied. The opinion and reviews of the customers regarding a particular product are considered to be a valuable resource for the improvement of customer's experience and satisfaction and render goods as per the demands and needs of the customers. The customer feedback can be achieved by the different

firms through the implementation of several aspects which includes (Boss *et al*. 2019):

- Regular telephonic interaction with the customers
- Distribution of feedback forms
- Live chat support system on the firm's website
- Online polls, etc.

2.4.5 Identifying targets and goals for improvement

The identification of targets and setting realistic goals for the firm shall help them to achieve better performance efficiency and productivity in the market (Yao and Huang, 2018). The identification of suitable and appropriate targets for a firm is considered to be extremely important as it helps the company to perform better than its market competitors. Sometimes these goals are set within the organization to increase the flexibility of the employees and shall motivate them to work better than their potential and capabilities (Yao and Huang, 2018). The areas in which the firm is not performing efficiently are also identified through this and hence implement policies which shall improve the productivity of the firm and help them in earning better market share. The process of identification of targets and goals within the organization is generally executed through gradually moving towards four basic target setting principles which include baseline, basic, intermediate and advanced which explains that the company should focus on setting realistic goals and progressively proceed towards it (Huang, 2019)

2.4.6 Performance Assessment

The assessment of the performance of several employees working in the enterprise is evaluated through the analysis test and annual report of the employees (Roubaud, 2018). The assessment of the performance of the employees is helpful for the firm to assess the areas in which the company is not able to perform efficiently and productively and hence requires to be improved through implementing specific strategic plans and activities (Dey, Malesios and De, 2020). The prosperous areas of the firm are to be developed and enhanced in such a way that it produces better goods and services and improves the marketing efficiency of the firm. The areas in which the companies have failed miserably need to be thoroughly evaluated and

implement the kinds of strategic approaches that improve the status of the firm and help them in accomplishing the required targets and goals (Roubaud, 2018). This is done by organizing several training programs for the employees and motivating them to enhance their performance in the firm.

2.4.7 Clear performance monitoring and measurement plan

The performance of an enterprise is measured through the implementation of a specific monitoring and measurement plan, which provides a detailed report of the organization and acknowledges the several other aspects that are supposed to be considered to enhance the efficiency and productivity of the organization (Westcott, 2019). These monitoring and measurement plans are useful for an enterprise to be small or medium-sized, as it helps the organization to develop and implement various strategic approaches that shall be considered beneficial business growth (Westcott, 2019). The steps involved in clear performance monitoring and measurement plan includes:

- **Conduct research to analyze the best policy for the business**- To assess the quality and performance growth within an organization, the firm needs to search for the assets in which the company excels and the areas in which they lag. This helps the company to amend the policies and strategic plans for their adequate growth.
- **Focus on setting realistic goals**- To enhance the performance and efficiency of the corporation, the firm needs to emphasize setting goals that are practical and can be achieved through the hard work of the employees. The firm must be clear on the purposes of the company and the ways through which these goals can be achieved.
- **Focus on improving the efficiency of employees**- After the settlement of goals and targets for an organization, it then needs to perform the training programs for their employees which shall help them in increasing their efficiency and performance productivity.
- **Evaluation of the measurement plan-** Finally in the last step, the organization should thoroughly evaluate the monitoring and measurement plans that have been implemented in the business to analyze the success ratio and assess the

performance of the company and their employees which helps the firm to monitor their overall performance towards achieving the earlier proposed goals and targets (Westcott, 2019).

2.4.8 Critical Success Factor (CSF)

The efficiency of the operations is very crucial in the implementation of BI tools in the corporation. If the operations run effectively and plan properly by determining critical factors, it gives several benefits. In SME's the management needs to focus on these activities accurately so that they can increase their productivity and set proper objectives. Also, environmental responsibility helps to give active business in the market. It ultimately gives the organizations opportunities to run their business effectively in the competitive market. Besides, by adopting these factors companies can increase competition in the market, which also increases job opportunities and economic growth. The operation costs are controlled if new technologies are implemented like business intelligence so that planning and monitoring of data can be done in a systematic approach (Rahahleh *et al.*, 2020). The company can expand its business in the digital platform by using business intelligence. This way they can connect mass audiences in minimum time and cost. The business intelligence tools help the company to focus on marketing online so that they can save promotional costs. The small and medium enterprises business required to expand their business for future growth and need to develop new products and services as per the demand of customers. The satisfaction of customers can be analyzed and fulfilled by using CSF in projects and implementing business intelligence tools so that products developed with the best quality and at a low price. This increases the demand for the products in the market and encourages customers to change their purchasing behaviour (Jaworski and Kohli, 2000).

The Indian market needs to implement these tools and train its employees so they can utilize it correctly. Business intelligence tools monitor the prices of competitors' brands and then bring changes in their performance so that they can produce better products and services as compared to their competitors. The organizations can launch new schemes for their customers like discounts, vouchers, and loyalty points, which they can use while purchasing products from their brands (Ramanathan *et*

al., 2017). It can only be done when companies use their operational plan efficiently by implementing business intelligence tools and improving their production capacity. By increasing the speed of operations with the help of adopting new technology, companies can improve their business and market reputation. They can quickly get investors if their status and performance are right in the market. So, they can focus on the investment and purchase new technology and expect a return on investment. With the adoption of business intelligence tools, the company can expect good performances, but it will take time. The infrastructure of the companies can be expanded and can focus on new resources that continuously help improve the quality of projects. Although if operations are developed the company can increase its sales, which ultimately increases profit and revenue. Thus, we can say that BI can help in establish an excellent financial position of the corporation in the market and encourage organizations to focus on more investment for expanding their business(Torres, Sidorova and Jones, 2018).

The critical success factors help to develop strategy and innovation, which brings the best outcomes for the business. It also gives ideas to provide necessary training, which allows the manager to adopt new tools in the work process and can fulfill the demand and needs of the customers. The primary objective of a business is to satisfy its customers' requirements, and for this, they adopt several tools in their industry, the knowledge-based information. In the organization, BI works as a capability that can resolve problems by its planning and predictions. It helps managers to understand situations and invent new processes to increase operational performance.

BI allows the corporation to provide exact information at the precise instance so that the right decision can be made. In the daily activities of a business, generated data are understood in the company and play a crucial role in developing business strategy and increase competition in the SME market. With time in the organization, the role of business intelligence is changed due to its dynamic quality (Kharub and Sharma, 2018). The programs of business intelligence systems are simple, constant, and systematic, and in the organization, it used to run functions. In the organizations, business intelligence tools are used in several tasks like planning strategy, operational management, building customer relationships, and creating

brand awareness and increasing profit. The technique of organizational management is determined by business intelligence, so it cannot be considered as a technology category. It helps in collecting data, storing data, processing it, analyzing ‘it, and utilizing it in an efficient way to get better results.

The following components of business intelligence are explained below:

- From various dimensions, the data are navigated by end-users and are referred to as the processing of on-line analytic.
- The data are analyzed so that patterns are shown and predicted by using statistical and other quantitative techniques in case of advanced analytics.
- The tasks are aggregated and query when records of the organization are integrated, and all this is handled by the data warehouse.
- The real-time analysis and distribution of information are done by the functions of real-time.

In the organizational performance, the business intelligence helps to put the right input in the management and business, so the output develops to meet with the expectations of the organizations. BI tools help to gain several opportunities so that customer demand can be fulfilled efficiently. In the category of organization, process, and technology the factors can be utilized with respect to business intelligence (Dey, Malesios and De, 2020). It is very important that the company needs to focus on the orientation of organizational performance so that the business intelligence tools can prevent the problems.

The factors which help in determining the growth and success ratio of the organization and examine the implementation of strategic business plans to meet the objectives are referred to as the CSF or the Critical Success Factors (Wuni, Shen and Osei-kyei, 2019). Some of these critical success factors with respect to Indian Retail Small and Medium-sized Enterprises are mentioned below(Moeuf, 2020):

- **Market Share**- This factor is useful in the determination of the size of the organization, its operational efficiency, and operational competitiveness and annual turnover in relation to its market competitors.

- **Sales volume-** Sales volume refers to the number of units sold by an organization in a specific period of time.
- **Customer satisfaction**- This factor measures the reaction of customers and their gratification regarding the various products and services rendered by the organization.
- **Employee turnover**- With respect to the human resource development policies, employee turnover refers to the number of employees that are removed or recruited in an organization that helps the employer to estimate the budget of the company.

Critical Success Factor (CSF) are broadly divided into two segment, Soft CSF, Hard CSF. Fig 2.3 gives example of few Soft and Hard CSF for an organization.

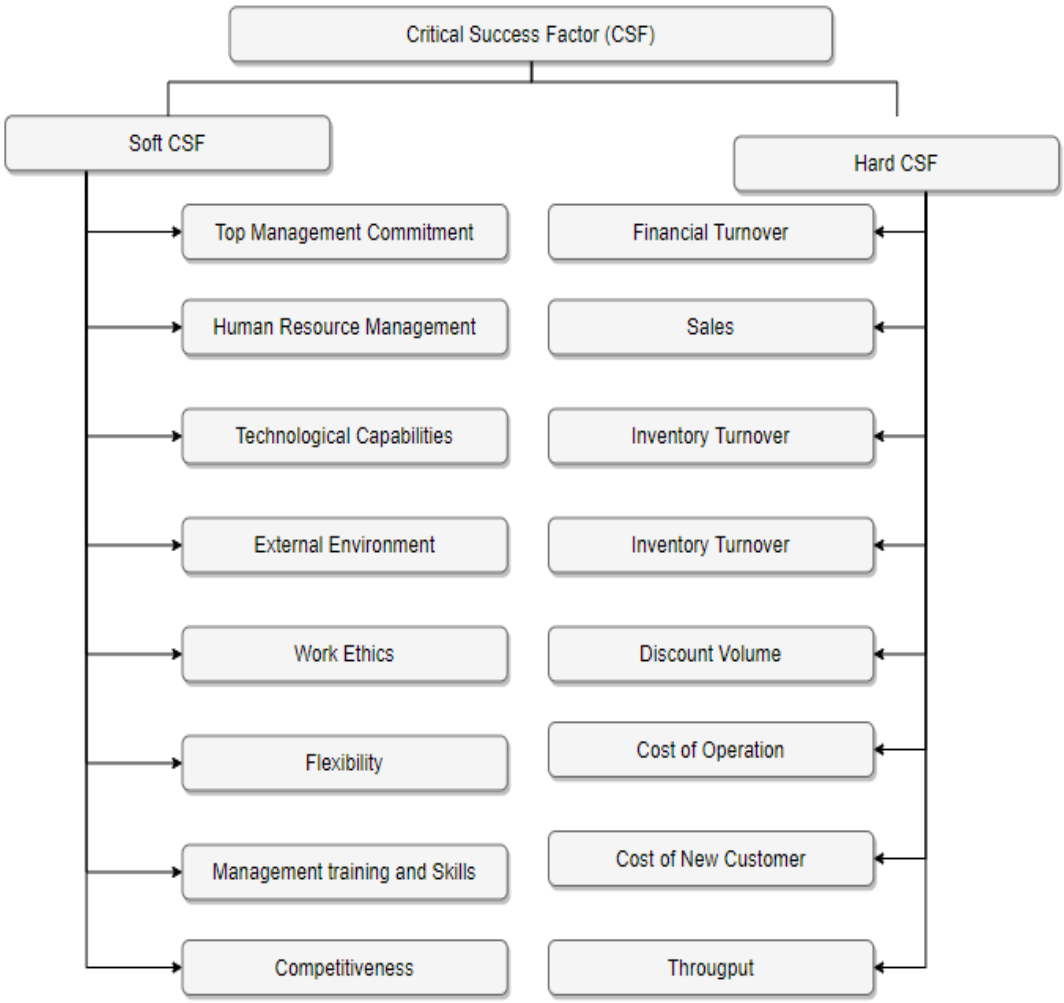


Figure 2. 3 Examples of Soft and Hard Critical Success Factor

Soft Critical success factors amalgamate the abilities which are based on subjective assessment and it is often difficult to tutor as it is an interpersonal skill that cannot be measured.

Hard-critical success factors are often teachable and specific in nature. At times, such factors can be measured and defined. The hard skills of critical success factors are mostly unchanged, and they can range from having a degree, operating machinery to programming computers. Such factors are requisite to accomplishing the organizational success and with the assistance of BI tools to gain advanced solutions to various situations and issues can be effectively solved.

2.5 Business Intelligence

Business Intelligence tools play a significant role in the strategic planning of the organization. The key development and research capabilities involve filtering as well as the transformation of data, arranging and cleaning data, and thereby preparing reports and dashboards. It also accommodates visualization of data, data lineage tracking as well as adaptive security.

This section of the literature review aims to understand the evolution of BI and factors that affect the implementation of BI tools for usage. Though BI is vast topic for research which covers the application of tools and studying all software available, the focus of the research will be to understand how the BI can help in decision making involving various functioning; these may include “statistical analysis, mining of data, reporting & query, Online analytical processing (OLAP), etc.” (Ranjan, 2009). The following section will cover the general background of computer technologies being used in business.

2.5.1 Information Technology (IT) in Business

For different industries, Information Sharing (IS) and coordination are very challenging for business (Vanpoucke, Boyer and Vereecke, 2009)). As discussed earlier, to meet the continuous change in the market retail SME need to be flexible. Information technology plays a cutting edge to deal with uncertain factors of change for business adaptation. The availability of information allows decision making in an unforeseen situation and help in sustaining the market (Moscoso-zea *et al.*, 2019).

The utilization of computer for the business purpose was started in late 1950 before that computer were majorly used for scientific purpose and accounting. During 1960, the innovation in technology extended to encourage different use of computers like manufacturing applications, inventory management, production control, etc. From that point onward, computer technology became very crucial for R&D and have been extended for business purpose. In 1970 various conditions and events emerged that constrained managers to look more carefully for the IT system. Later in the 1980s, multiple corporations started to use the computer as a tool to support their business

and develop strategies (Jackson, 2015). These days, corporations know the significance of BIS and how BIS can be vital for gaining the goals of the firm.

The advancement of IS has shaped nexus amongst fields of management, computer science, researchers, and accounting (Mckay, Marshall and Hirschheim, 2012). Consequently, IT has turned into a technology that is very attractive for business and innovation, which can help in the execution of business very effectively. IS and IT are different terms which have been confused in most literature, Communication, and computer science together is said to be IT field. At the same time, management is related to IS in combination with computer science (Patel, 2004). Use of IT for business purpose help in the growth of business and support in keeping up complexity and business speed (Larissa T. Moss, 2003)

Moreover, IS change how individual work, they incorporate practically in all parts of the business for the usage of latest techniques and business opportunities that help in business performance.

“The use of business information systems (BIS) has been of enormous importance for eliminating duplicate activities, preventing errors, reducing cycle time in product development, and improving customers’ expectations in products and services.” (Al-majali and Kingdom, P.128., 2013)

IT adoption is characterized in stages that start with the planning of innovation and is completed only when all phases of integration of new IT design or infrastructure are embedded in an organization (Kamal, 2006). The adoption of IT should never hinder the working process of the enterprise, where continuous running speed plays a crucial role.

Factors effecting pace of adopting new technology in SME’s (Sandu, Gide and Karim, 2018)

- Level of education of SME Owner/ Manager.
- Lack of information.
- Low investment in ICT
- Lack of R&D

2.5.2 IT/IS Selection

As examined earlier in earlier segments, the general focus for selecting IT/IS is accomplished by effectively understanding business via the use of Information management as a week as analysis capability Viz., Data mining, OLAP, and DWH. Consequently, the aspect that impacts the business selection of IT/IS is associated with the utilization of IM and the capability of data analysis. The choice of IT includes innovation that could be used to collect data, process it, and graphically displaying the data (Sandu, Gide and Karim, 2018). Thus, several studies have adopted IT for business, which involves assessment and graphical representation to analyze data with IT framework. This segment covers the IT framework for adoption further.

As defined in the previous chapter, this research purpose is to find factors to enhance decision making within retail SME by improving operational performance. In respect to this objective, *Nguyen, 2009* develop a design to explain the effect of technology acceptance in SME's according to the difficulties that have been noted in the literature. The framework suggests that there are both external and internal difficulties faced while adopting IT in the enterprise. The challenges which are observed by market functioning are external and which are dependent on business are internal, Some of the example of internal and external sources are:

Internal Source: Maturity level, life cycle, enterprise value.

External Source: Competition, Market push, Technology advancement, market pull

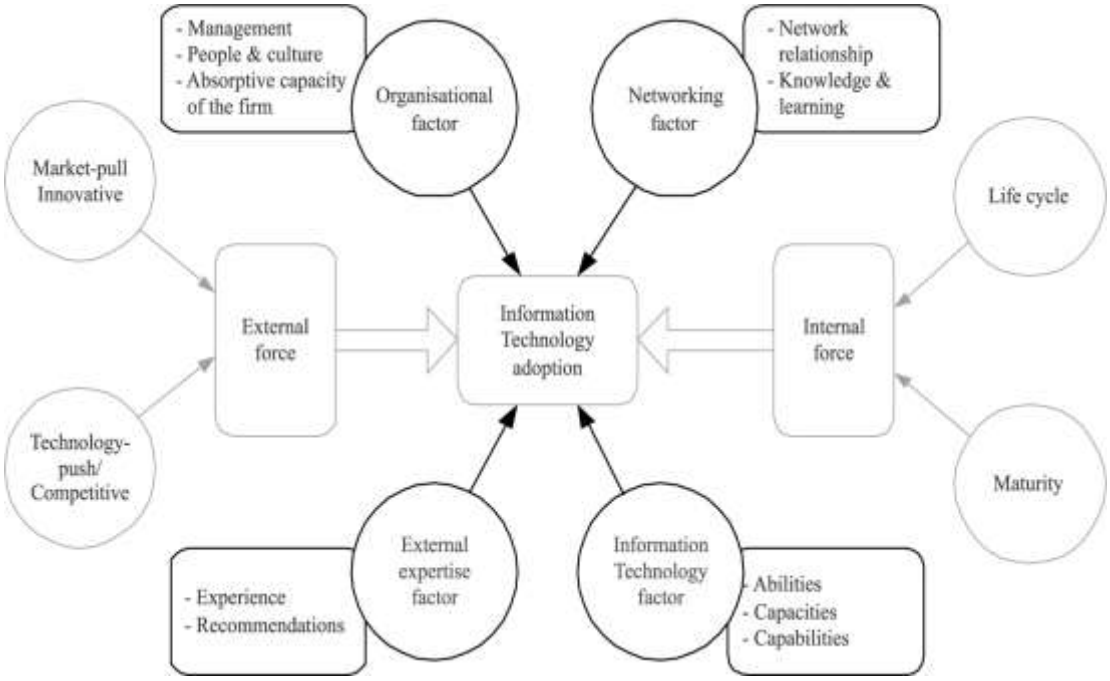


Figure 2. 4 : Nguyen, 2009 *model for IT adoption*

The framework is from data gathered from various research-led for similar purposes. Thus, this framework adds to the accessible literature as far as defining the shared factors for selecting IT for SME's. Hence, in this thesis, Nguyen's model can be utilized as a source of the perspective of shared factors of embracing IT/IS for enterprises; because the paper does not provide grounds for structure and does not explain the technique used for the selection of technology. Moreover, the environment for selecting IT-IS may vary depending on the internal and external environment, as discussed previously. The model as examined in common grounds, which may vary in different cases and might not be reasonable for all situations.

There are numerous factors which affect the implementation of IT success which must be inspected before implementing any infrastructure these are IT speculation & preparation, methodology, Planning, Training, and external support to employ(Al-majali and Kingdom, 2013), Nonetheless, review of the literature suggests there have been various unsuccessful execution of IT in SME's which could have been avoided by analyzing these factors.

There is two success factor in which the selection c IS impacts those are the performance of organization and individual (Delone and Mclean, 1992). This framework defines that the impact of selection effect two factors which are the way of using IS and satisfaction of the user. However, user satisfaction is dependent on the quality of information and the system shared. Figure 2.4 define IS model

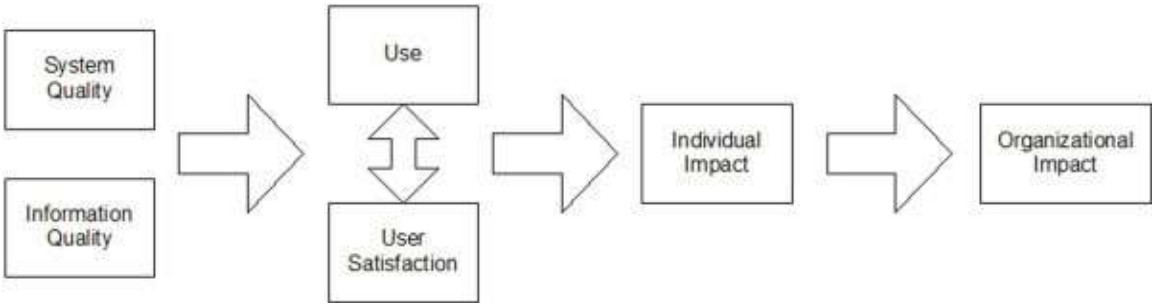


Figure 2. 5 IS Model (Delone and Mclean, 1992)

The framework suggests that it is critically important to focus on success measures for interactions to select the right IT system. Moreover, the model has been verified and used by various research paper which authenticates and plenty of paper propose enhancement for the model. The model was then refined by Delone and McLean after different research by changing the term “impact” as “Net-benefit” as impact creates misunderstanding with two way positive and negative terms. Moreover, the model has was then introduced with a feedback system, and for e-commerce factor IS model introduced service quality.

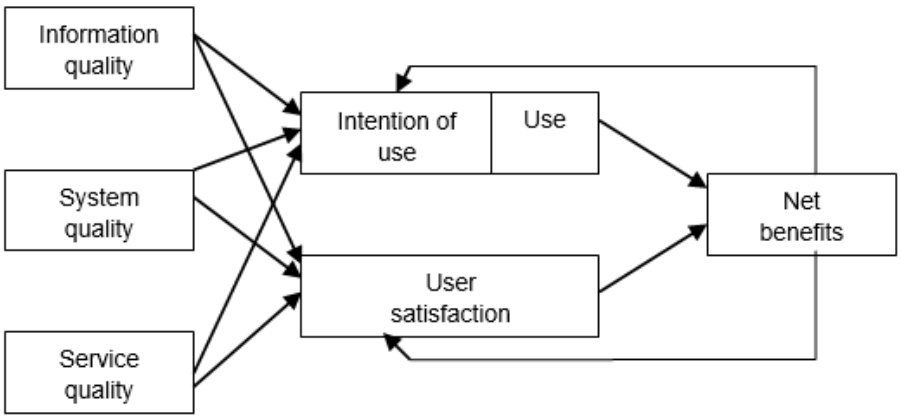


Figure 2. 5 Success model D&M IS (Delone and Mclean, 2014)

This model takes into account information system although it does not account for drivers for the process for adoption of successful IS. On the other hand, Ammenwerth 2006 model which was earlier designed for health sector note about the fit amongst the individual user attributes, technology and task.

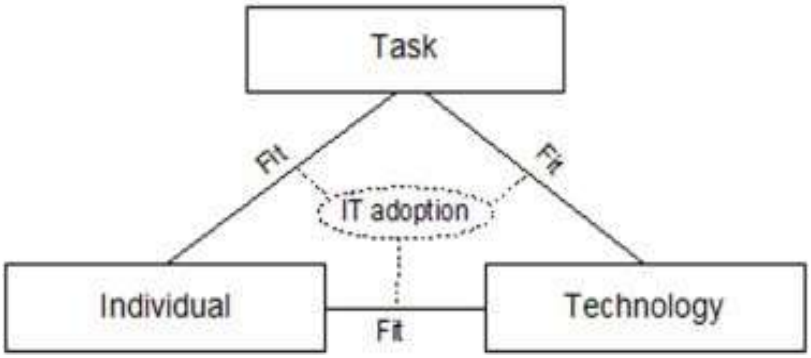


Figure 2. 6 FITT model-Ammenwerts 2006

(Onyejekwe, Rokne and Hall, Pg 199, 2014)

The model is said to be 3D for IT adoption, and the aspects for attributes are:

- Individual level: IT information, inspiration, and enthusiasm for the undertaking to be finished, adaptability and receptiveness to better approaches for working, hierarchical setting, group culture, collaboration inside a group, and legislative issues inside an association
- Task level: exercises and their reliance, unpredictability of errands, Work to be finished.
- Technology level: Convenience as well as stability of a product or equipment device, expenses of a device, incorporation of tools, accessible specialized framework, usefulness, accessibility of instruments in a specific clinical circumstance

The intervention aspect is classified into two Internal influences and external influences.

Internal Influences: Those interventions that are controlled by management example; training, support, work process, updates provided, etc. External Influences: Those interventions which cannot be controlled, for example; Staff change, legal change, new technological advancement, workload change, etc.

The FITT model was used by various researchers investigating between dimensions of the framework and found out these fit are inverse proportion to their factors as an increase in fir between task and individual decreases fit between technology and individual (Lepanto,2011). However, the model analysis is based on a literature survey. Nonetheless, there has been no other model which, apart from all the three factors of the task, technology, and individual like the FITT model.

Business Intelligence is often referred to as Online Analytical Processing (OLAP) Technique as it collects data for the processing and analysis to assess decision making (Herschel and Jones, 2005). It is evident after understanding the literature that BI helps to use data in the best possible form, which is often not utilized. In general, information utilization can lead the industry to attain maximum use of data, which the primary functioning of BI.

2.6 Summary

In India, most of the retail companies are more worried about procuring business information to sustain in the market, which has flourished a knowledge-based economy. This has expanded the interest of ventures in IT technology to accumulate and analyze the data of the business. In this section, various role BI roles were explained with previous models used in different research papers.

The research focuses on understanding the benefit of adopting BI in the targeted sector by understanding the requirement of the industry. However, the proposed dissertation topic has a gap as during investigation; no similar research was found targeting Indian retail SME's, which led to examining the universal model to understand BI adoption, which was supported by a questionnaire survey. There is various computer technology to understand BI implementation like OLAP, data warehousing, mining, etc. which were not explained in the dissertation due to word constraint. Moreover, these technologies support the same model of collecting and analyzing data by different processes, which are part of future work. The success factor from various research with a similar model was studied which provides a model for development is defined in table 2.7.

Publication	Method	Success factors
Nguyen, T. H. (2009)	Literature review	organizational (internal environment) Networking Top management External expertise IT capabilities
Delone & Mclean (1992)	Literature review	System quality. Information quality. Use of IS. User satisfaction. Individual impact. Organizational impact.
Levy, M. et al. (2011)	Mixed approach: Case study/questionnaire	IS investment Alignment between IS and business strategies Path of alignment. Market position.
Ammenwerthet al. (2006)	Literature review	Individual - organizational. Task. Technology.
Kundu, A. Katz (2003)	Case study	Economic benefit. Complexity. Compatibility. Information and communication channels. Innovation. Capital investment. Technology compatibility.

Table-2. 6 : BI Success factor (Multiple Source)

The research investigation for the literature has a very vivid range as defined: Retail Industry, SME's, Business Intelligence, Performance management. Thus, the literature has been broken up into different articles for the understanding of the topic. The defined article was aimed to be relevant for the survey rather than a complete overview of the assessment of the research subject.

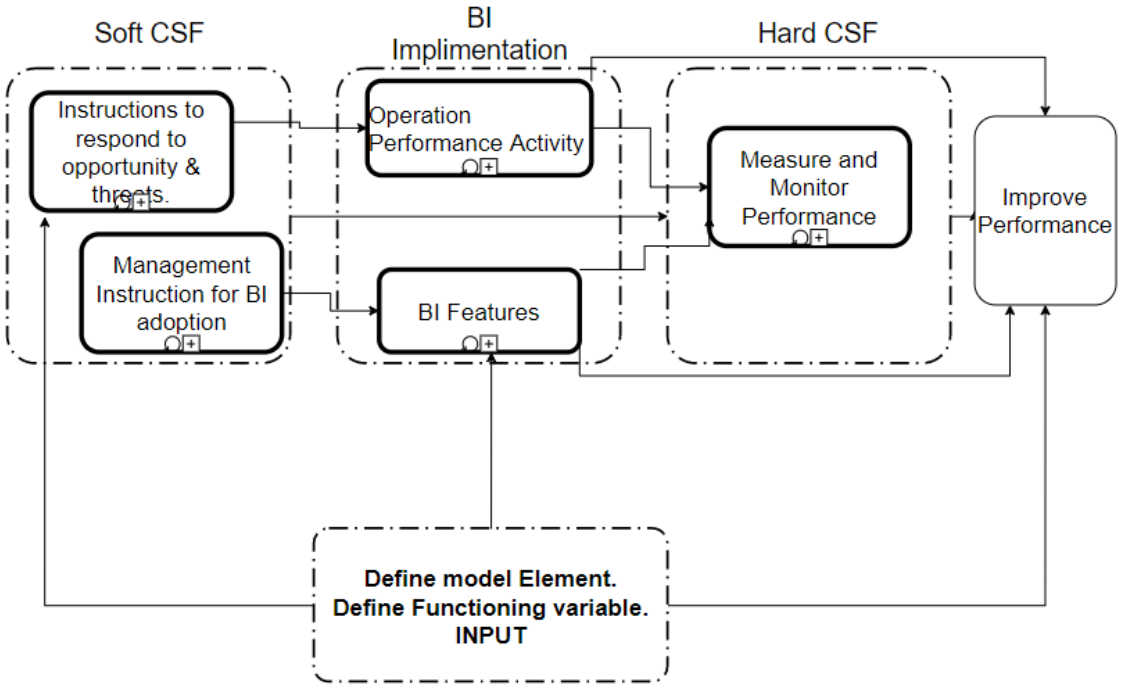


Figure 2. 7 Concept Model

The collaboration of literature has been conceptualized in the figure. 2.7. Where research study of different segment help in contributing to enhancing performance activity of the retail industry by implementing the model. On the left is soft factors that give instructions to respond to the implementation of BI tools. As discussed earlier, soft factors are management commitment, human resources, external environment, and communication channels, which are non-measurable. The second phase is BI implementation, which provides data analysis, statistics, and implementation of other BI features to enhance performance activity by appropriate decision making, which intern effect hardfactors. Hard CSF includes measuring sales, inventory, turnover, etc. as defined in the literature. The continuous functioning of the conceptual model is essential for constant performance improvement.

Chapter-3 METHODOLOGY

3.1 Research Methodology

The research framework and procedure is described in the methodology, which portrays the techniques used in the exploration of study. The methodology is directed to analyze and define the methods used to support research questions by following the research framework sequence. Furthermore, this section explains the research design, data-collection process, and analysis. As discussed in Chapter-1 defining question for dissertation has led to RQ1 and RQ2, which is accomplished by Objective RO1, RO2, and RO3. The research aims to identify RQ1 and RQ2, which is led by determining factors affecting retail SME's in India, which has been defined in the literature.

The dissertation follows the exploratory nature of research that helps the researcher to comprehend applicable information for the understanding of the hypothesis. Exploratory research is used in this thesis for determining the factors that affect the retail industry and BI tool adoption to support operations.

The main focus of the dissertation is to achieve research aim by implementing a research design plan, which is based on an onion diagram created by Saunders, (2007, p-132) figure 3.1 to depict the procedure for various exploration. The diagram includes a succession of choices across five principle viewpoints for research. These layers and their viewpoint choices have been selected for this research and are discussed further in this thesis.

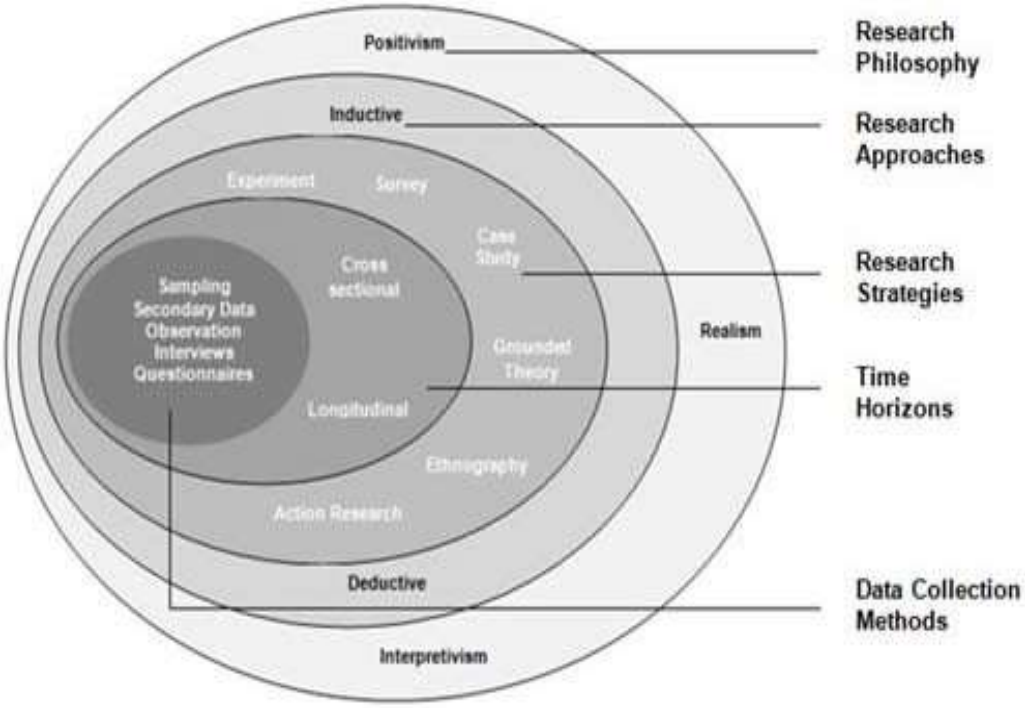


Figure 3. 1 : Onion research Diagram (Saunders, 2003)

3.2 Research Design

The primary objective of the research is to recognize factors influencing retail SME's in India for BI tools implementation. The study aims to cover the factors responsible for the business growth for retail SME's and how BI tools can support it. It is very crucial to determine the methodological framework for the investigation which is represented by Fig-3.2.

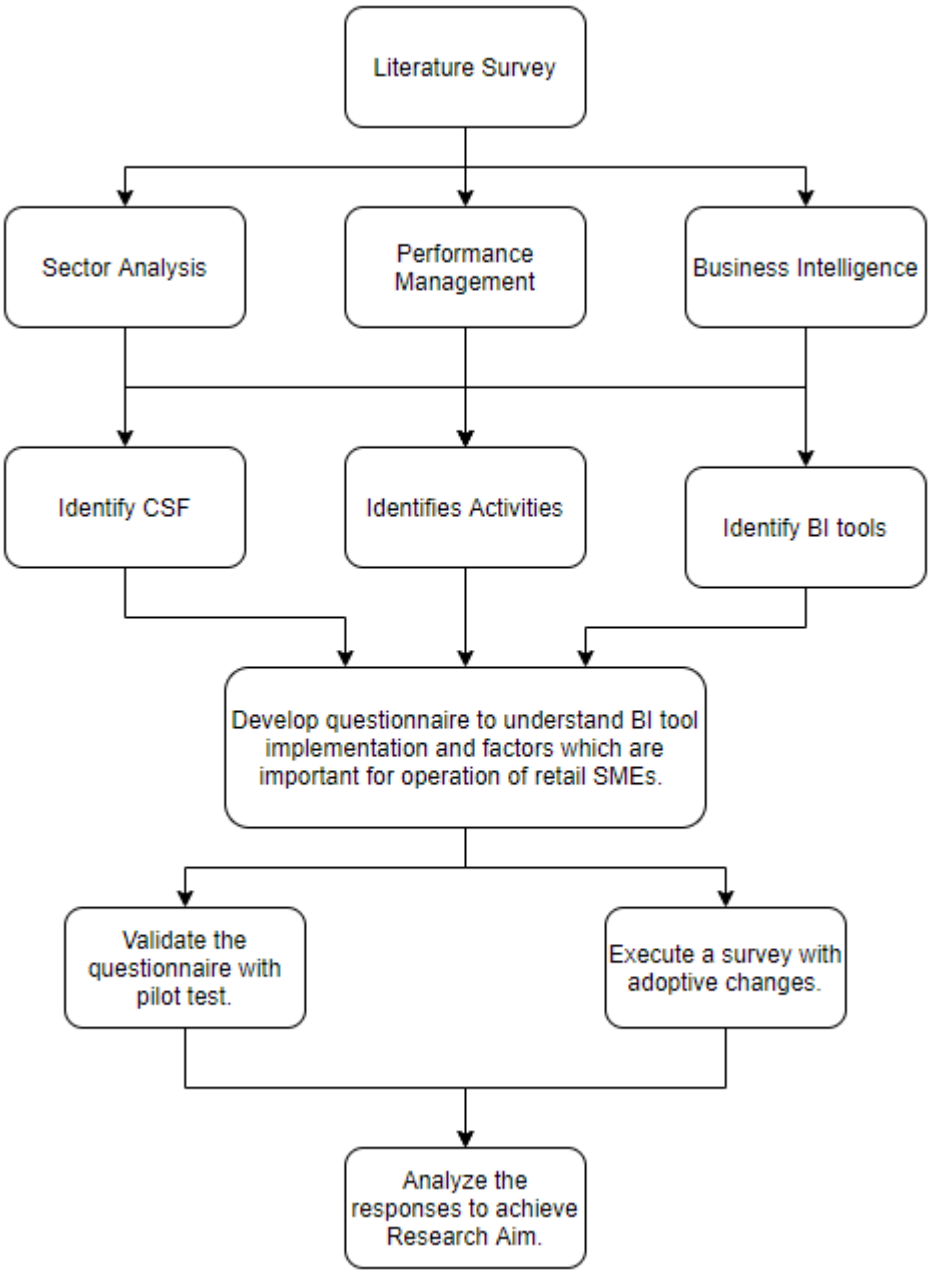


Figure 3. 2 : Instrumental framework

3.3 Research Philosophy

The philosophy defines the method researcher considers for the advancement of the thesis in philosophical structure, which leads the way how the research work is done (Saunders, 2003., p-84). Two primary viewpoints for the research are positivism & interpretivism. Interpretivism leads to the hypothesis that new research cannot be dependent on previous studies; thus, the concept justifies a quantitative approach. Positivism, on the other hand, is associated with the disclosure of speculations

depending on observation and quantitative examination, which is done during the research where it is assumed that the investigation is measurable. The survey persisted with a positive philosophy where collective response let to conclude with statistical analysis.

The integral part of the research is the questionnaire; however, to initiate an investigation, we need to elaborate the technique for data collection by pealing the outer layer via an onion exploratory research method. The research has focused on a positive philosophy where reliable data is collected in a real environment from the closed questionnaire survey to eliminate variability. The research has focused on the survey of retail management, where combined input has led to a conclusion with statistical analysis.

The research gives a profound comprehension of threats and taking advantage of opportunities in the retail sector to improve performance. The research focuses on supporting performance operations by recommendation of BI tools. Thus, the key notion for the BI tool adoption for improving performance in the retail sector is threats and opportunities of SME, Operation performance management, training, and development needs as well as Business Intelligence. To sum up the view, the research distinguishes the elements that impact operational performance in the retail segment, attributes of SME's, and the model of BI to understand the concept. Still, the problems continue to improve operational performance in the retail sector, and the missing link should be filled up by the BI tool for continuous management functioning. The tools are required to support the performance in all matters by analyzing the data. Fig 3.2 defines the approach of research to achieve RA.

As defined earlier, the goal of this thesis is to find factors that affect the operations and implementation of BI tools within the Indian retail industry. The literature determines the various information regarding operation performance, SME sector, and BI tools, but none of the literature defines the purpose as focusing directly on the retail industry, which makes this research a combination of positivism and interpretivism approach.

3.4 Research Approach

To determine RQ1, the research progress with literature survey providing preliminary information establishing a foundation for BI tool adoption to enhance decision making for retail SME's.

Moreover, the approach for the thesis is inductive exploratory, where data is collected to induce a particular result. Exploratory investigation helps research to gather relevant information to comprehend the problem and then recommend theory. Thus, the exploratory study was chosen to find out requirements and factors that impact the BI adoption and opportunities which open with the use of BI tools. This kind of methodology is applied when the research issues entail profound comprehension of the research variable, exclusive participants are involved who can give more informative and relevant data.

3.6 Research Strategies

The exploration to find various factors that influence the Indian retail industry continued with the interview, which comprehends detailed data from the most important participants. After conducting the one interview, it was found to be ineffective due to the restricted knowledge of the interviewee. Also, due to Covid-19, it was not possible to take vivid interviews as most of the SME's were closed. Hence, the research continued with the questionnaire survey of elite participants from which data was analyzed.

Furthermore, this led to the experiment by reversing the flow of information from the deductive approach to the inductive method. This is because the case study to analyze retail operations was not possible on one to one scale and required detailed data that was expected from participants was failed during the research. However, the alternative method for gaining useful information was replaced by determining expert views on the topic by taking a literature survey which was grounded by the pilot test.

The research contributes both primary data along with secondary data to attain the aim of the study. The research framework was defined to support the RA1 & RA2. The secondary data was collected to find factors that affect the adoption and

development of BI tools to achieve RO1 & RO2. Then secondary data and primary questionnaires are then used to attain RO3. The strategy of gaining secondary information from other appropriate resources that have been used by various researchers as found during studies. Although, this secondary data must be backed up by primary research as the secondary data is collected by research for other purposes. Thus, the primary data-collection strategy is focused on gaining useful information from participants in Indian retail SME's. The retail survey in this investigation is used to back up the literature gap to determine RO3 as defined in the Research framework. Thus, the strategy to backup groundwork in a literature survey by primary data is a significant strategy that is applied in this research.

3.6 Time Horizon

It is more suitable to implement cross-sectional studies while implying survey research (Saunders, 2003) as cross-sectional studies are descriptive and help in understanding the phenomenon, also it is more relevant for the academic research as it is time constraint. Whereas, a longitudinal study is based on observation and variable which take long time to determine correlation. Thus, this research is based on cross-sectional research rather than Longitudinal.

3.8 Data collection

As mentioned previously, the quantitative research method was selected for the collection of data, which helps to avoid open questions to obtain an exact measurement for research. The research also involves secondary data collection to gain useful insights that allow data sampling for the questionnaire. The secondary data provides information to carry out an industrial survey. The dissertation follows an exploratory methodology that covers both forms of a survey which include literature as well as industrial.

The investigation seeks to explore two forms of research, i.e., primary and secondary. The secondary investigation is the outcome of grounded work followed by prior studies, books, research, etc. which is analyzed to gain valuable information. Whereas, secondary investigation comprehends the survey of exclusive participants in an associated field of research. Data was circulated amongst more than 200 people in the retail sector, including managers, team

leaders, executives, and other employees, to gain the non-biased result. However, only 57 total responses were collected, of which 53 was counted for the analysis as few of the participants partially filled the survey.

Case Processing Summary

		N	%
Cases	Valid	53	98.3
	Excluded[a]	4	1.7
	Total	57	100.0

a. Listwise deletion based on all variables in the procedure.

Table-3. 1 : Questionnaire survey processing summery

As defined earlier, secondary data was collected, which helped in determining RO1 and RO2, which is then backed up primary data, which was analyzed by a questionnaire formed from the selected sample. This questionnaire was then circulated using the survey monkey platform, which helped in validating the feedback by the pilot test. However, the platform survey monkey was paid limited free trial for some days, restrained the analysis to be presented. However, the study helped in finalizing the reconstructed questionnaire in google forms platform. There was a total of 45 questions formed and were divided into five sections:

Section 1 – Companies Characteristics- Q1 to Q6

Section 2- Performance Management- Q7 to Q15

Section 3- Business Intelligence – Q16 to Q21

Section 4- Soft CSF- Q22 to Q30

Section 5- Hard CSF- Q30 to Q45

The statistical analysis and reliability test were done as defined in the instrumental framework in figure 3.2.

The exploration of the research was carried out by targeting participants working in retail SME's of India; a total of 57 responses was received, out of which 53 valid records were selected based on reliability test. As the dissertation is a combination of

primary as well as secondary research where secondary study explores different research to obtain valuable knowledge for the analysis. In contrast, primary research is done to verify the literature. To determine Research questions, it is essential to define the flow of investigation given in figure 3.3.

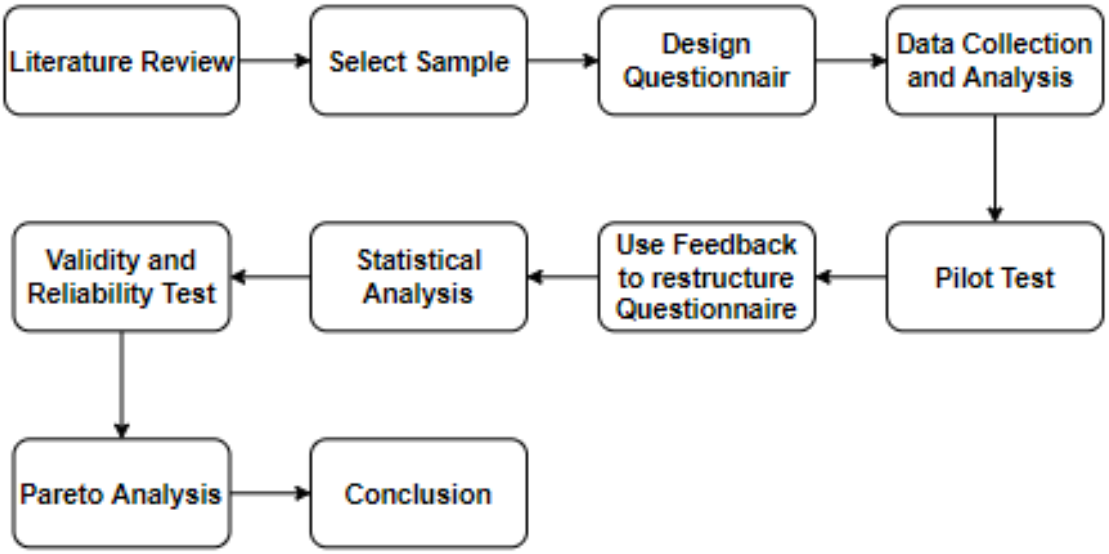


Figure 3. 3 : Research flow

3.7 Ethical Consideration

Research ethics guidelines are very crucial for the completion of the appropriate study. The participants were given significant time to respond to the questionnaire survey, accounting ethical consideration so they can meet with a veracious opinion. The research carries no intensions of any harm towards participants and will sustain full anonymity. The purpose of the research was predefined to participants and adhere to the confidentiality of the individual. Participants' identity will only be revealed only with their permission and have complete right to withdraw their data during any point of research. The research does not aim to mislead or exaggerate the responses and undergone with absolute honesty. The dissertation respects the previous studies, which helped in the study. The study does not mean to steal any secondary data and has acknowledged the information with pertinent referencing.

Chapter-4 DATA ANALYSIS & FINDINGS

The participants for the questionnaire were contacted who are working in Indian retail SME's at different levels of top managers, Executive, supervisor, Team leader. The received responses were then statistically analyzed following the research aims, objectives, and research questions set for this study. This chapter presents and explains the statistical analysis conducted and the relevant results and findings observed from such analysis.

4.1 Sampling Strategy

The procedure for sampling represents how analyzing from a small number of participants can envision the outcome of the whole population (Hennink, M.H. and Hutter, I., I. & Bailey, 2011). The disruption in sampling could be because of the bias nature of the participant, where individuals might have different opinions to cover this issue. Cronbach's alpha test is done to validate the responses from participants. The literature follows exploratory methodology that helped in investigating the problems in the Indian retail sector. The dissertation will facilitate a better understanding of the factors accountable for the growth of Indian retail SME's. The data-collection survey was done, which was then analyzed to validate the literature survey determining RQ1 and RQ2.

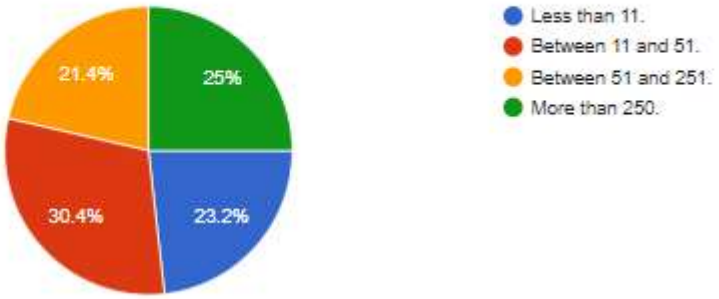
The participants include people who work in the retail industry in various positions. The purpose to enlist participants working in different positions was to avoid biased responses. The questionnaire represents 6 questions in section 1, set 1-6 which help in understanding the relevance of participants for the designated sector. The analysis of these sets of questions and the relevant results generated is explained below

1. Which of the following is the specialty of your company?

57 responses

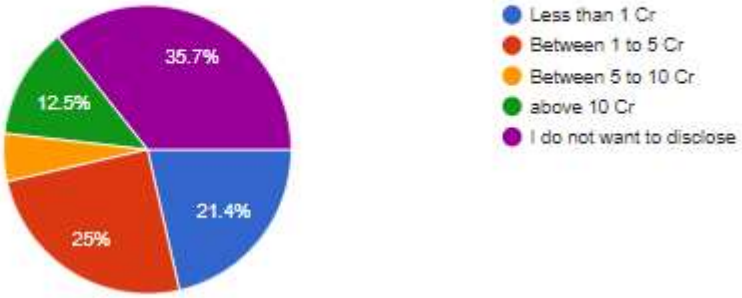
2. What is the number of employees in your company?

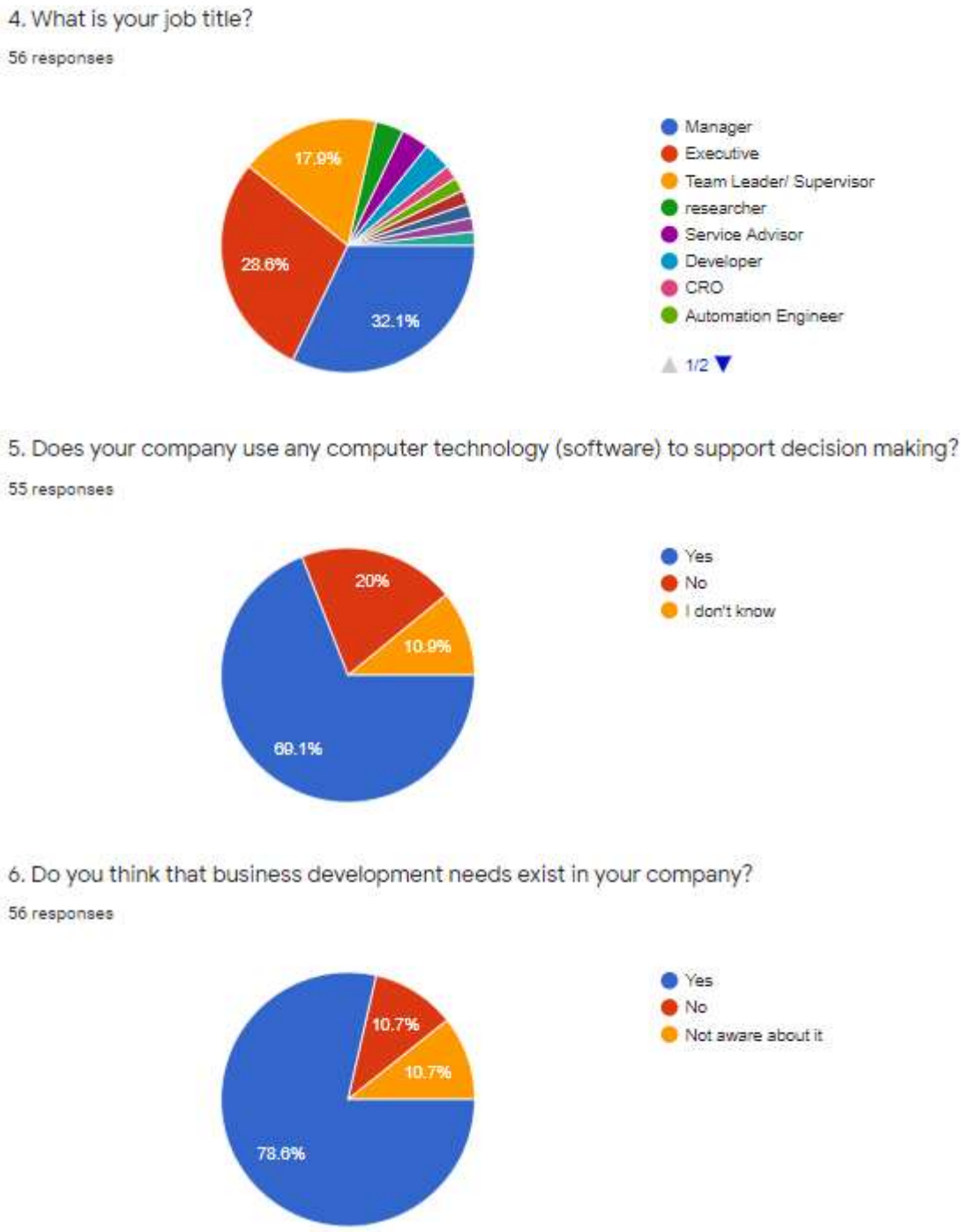
56 responses



3. What is your company's Annual turnover in Rupee?

56 responses





Pie chart analysis for participant position and responses

After analyzing this question, it is very clear that the participants of the survey are from the vivid retail sector as per Q1. Thus, there is no biased analysis done. also from Q2 and Q3 we can state that more 75% of the participants are from SME's. The questionnaire also defines that 78.6% of participants think that there is a need of business development in their company from Q6. This concludes that this study is very crucial for retail SME's.

4.2 Reliability Test

The reliability test makes certain that the responses gathered from the survey is valid and ensures that it does not include any random value. Similar results conclude to have accurate data from major participants define the questionnaire is reliable. However, it is very difficult to have a possible perfect correlation between different participants involved. Thus, the survey instrument needs to be changed to find out the correlation amongst participants. These cases include conducting the pilot tests, where evaluation is done amongst participants by taking the primary surveys so that the reliability index is increased. Statistical analysis has been done for the study using SPSS analysis, where correlation is determined by finding Cronbach's alpha value. The result is given by SPSS is defined in the following table

Cronbach's Alpha Value SPSS v25

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.919	.925	45

Table- 4. 1 : SPSS Cronbach's alpha reliability test

Cronbach's alpha value should be more than 0.65 to satisfy that the analysis is reliable. The statistical research represents Cronbach's alpha value is 0.919, which indicates that the analysis is reliable.

4.3 Validity Test:

To determine the legitimacy of the survey, the Validity test is done using SPSS, which helps in determining the validity of each question asked in the survey. A validity test is vital for the review of further examination for reviewing investigated questions. The research incorporates different critical factors in different sections, which are defined in the literature and are based on prior books, reports, and analysis. Furthermore, the responses collected from the primary study were legitimated using the SPSS validity test is given in table 4.2.

About 53 responses were analyzed where participants were examined to validate questions for Indian retail SME's. SPSS V25 software was used to determining the correlation amongst the factors. The degree of correlation may change in actual practice depending on discrete factors evident only in the field.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q10.1	77.30	309.022	.427	.918
Q10.2	77.04	321.422	-.050	.922
Q10.3	76.62	319.970	.006	.921
Q11.1	77.30	303.869	.522	.917
Q11.2	77.32	308.991	.425	.918
Q11.3	76.79	319.052	.035	.921
Q12	77.75	314.958	.195	.920
Q13	77.32	300.299	.554	.916
Q14	77.45	309.368	.346	.918
Q15	77.60	307.359	.469	.917
Q16	77.89	318.025	.149	.920
Q17.1	77.15	303.708	.506	.917
Q17.2	77.00	307.731	.385	.918
Q17.3	76.94	312.131	.217	.920
Q18.1	76.92	310.533	.249	.920
Q18.2	77.04	311.499	.263	.919
Q18.3	76.64	306.119	.384	.918
Q18.4	76.49	320.216	-.021	.924
Q19	77.60	305.128	.596	.916
Q20	77.62	308.316	.566	.917

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q21	77.64	310.888	.445	.918
Q22	77.25	307.035	.467	.917
Q23	77.49	307.909	.503	.917
Q24	77.43	304.673	.467	.917
Q25	77.51	306.639	.608	.916
Q26	77.40	304.744	.539	.917
Q27	77.36	304.196	.604	.916
Q28	76.66	288.344	.629	.915
Q29	76.83	287.336	.665	.915
Q30	76.72	284.976	.678	.915
Q31	77.43	304.635	.556	.916
Q32	77.43	306.481	.524	.917
Q33	77.28	304.322	.484	.917
Q34	77.58	311.440	.469	.918
Q35	77.45	308.022	.580	.917
Q36	77.25	303.804	.535	.917
Q37	77.51	313.985	.263	.919
Q38	77.40	306.205	.613	.916
Q39	77.42	305.247	.503	.917
Q40	77.49	305.947	.611	.916
Q41	77.53	305.408	.700	.916
Q42	77.58	311.478	.390	.918
Q43	77.21	302.668	.621	.916
Q44	77.42	301.671	.594	.916
Q45	77.58	304.709	.666	.916

Table- 4. 2 : SPSS Validity test for total entities

The correlation between the responses is calculated to determine the dependability amongst factors that are used as validity proof. Statistical analysis of data SPSS allowed to compare the legitimacy of these different factors and define correlation, which is very important for analysis.

The correlation defines the association of the questions where 0.9 represent strong correlation, and -0.2 represent very week correlation between variable. The validity Cronbach alpha value of the questionnaire if item deleted is similar defining reliability degree confirming instrument validity.

4.3 Descriptive Statistics

The exploration in the field of BI implementation was executed, which led to finding variables that might determine the factors responsible for adoption in the Indian retail Industry. These factors are outline in the questionnaire survey, and the value of the response was divided into the Linkert 5-point scale. Where representation from highly agreeing to disagree on a scale of 1 to 5 for data analysis, which is given as follows.

1.- Very Important.

2.- Important

3.- Somewhat Important.

4.- Not Important.

5.- Not at all Important.

The mean of the component is calculated by deciding the position of factors. Moreover, Responses are calculating by accumulating data where maximum responses are counted as one, i.e, very Important, which helped in the descriptive analysis as which factors have been selected as most important by the participants.

Item Statistics

	Mean	Std. Deviation	N
Q18.4	2.55	1.136	53
Q10.3	2.42	0.719	53
Q18.3	2.4	1.007	53
Q28	2.38	1.417	53
Q30	2.32	1.465	53
Q11.3	2.25	0.782	53
Q29	2.21	1.392	53
Q18.1	2.11	1.031	53
Q17.3	2.09	0.986	53
Q17.2	2.04	0.898	53
Q10.2	2	0.707	53
Q18.2	2	0.899	53
Q17.1	1.89	0.913	53
Q43	1.83	0.802	53
Q22	1.79	0.793	53
Q36	1.79	0.863	53
Q33	1.75	0.918	53
Q10.1	1.74	0.738	53
Q11.1	1.74	0.88	53

	Mean	Std. Deviation	N
Q11.2	1.72	0.744	53
Q13	1.72	1.007	53
Q27	1.68	0.754	53
Q26	1.64	0.811	53
Q38	1.64	0.653	53
Q39	1.62	0.837	53
Q44	1.62	0.882	53
Q24	1.6	0.927	53
Q31	1.6	0.793	53
Q32	1.6	0.743	53
Q14	1.58	0.865	53
Q35	1.58	0.602	53
Q23	1.55	0.695	53
Q40	1.55	0.667	53
Q25	1.53	0.639	53
Q37	1.53	0.668	53
Q41	1.51	0.608	53
Q34	1.45	0.539	53
Q42	1.45	0.637	53
Q45	1.45	0.667	53
Q15	1.43	0.772	53
Q19	1.43	0.721	53
Q20	1.42	0.602	53
Q21	1.4	0.599	53
Q12	1.28	0.744	53
Q16	1.15	0.456	53

Table- 4. 3 : SPSS Descriptive statistics report in descending order

The descriptive statistics help in determining the central tendency of the sample. The test measure number of responses selected for the most critical factors as compared to the total number of responses. The factors which are considered to be most important from the perspective of participants involved in Indian retail SME's are "Investing in a new computer," "Assessing Performance," "Identifying target and goals for Improvement." The test defines the factors irrespective of their subsection. However, the top 3 factors from every section of the survey have been discussed in the conclusion.

4.4 Pareto Analysis

Pareto analysis is done for primary analysis as it is useful where multiple responses have to be analyzed to determine effective factors or importance. Results from the Pareto analysis are given in bellow table

	Responses		Percentage of cases	Cumulative	Cumm.%	Questionnaire Section
Q. No.	N	Percent				
Q16	48	4.00%	88.90%	48	4	B.I
Q12	47	3.90%	87.00%	95	8	P.M
Q15	39	3.30%	72.20%	134	11	P.M
Q21	36	3.00%	66.70%	170	14	B.I
Q19	34	2.80%	63.00%	238	20	B.I
Q20	34	2.80%	63.00%	272	23	B.I
Q42	34	2.80%	63.00%	306	26	Hard Factors
Q45	34	2.80%	63.00%	340	28	Hard Factors
Q13	34	2.80%	63.00%	204	17	P.M
Q24	33	2.80%	61.10%	373	31	Soft Factors
Q44	32	2.70%	59.30%	437	36	Hard Factors
Q14	32	2.70%	59.30%	405	34	P.M
Q39	31	2.60%	57.40%	499	42	Hard Factors
Q23	31	2.60%	57.40%	468	39	Soft Factors
Q34	30	2.50%	55.60%	589	49	Hard Factors
Q41	30	2.50%	55.60%	619	52	Hard Factors
Q25	30	2.50%	55.60%	529	44	Soft Factors
Q26	30	2.50%	55.60%	559	47	Soft Factors
Q37	29	2.40%	53.70%	677	56	Hard Factors
Q40	29	2.40%	53.70%	706	59	Hard Factors
Q11.1	29	2.40%	53.70%	648	54	P.M
Q31	28	2.30%	51.90%	734	61	Hard Factors
Q32	28	2.30%	51.90%	762	64	Hard Factors
Q33	26	2.20%	48.10%	814	68	Hard Factors
Q35	26	2.20%	48.10%	840	70	Hard Factors
Q27	26	2.20%	48.10%	788	66	Soft Factors
Q38	25	2.10%	46.30%	915	76	Hard Factors
Q11.2	25	2.10%	46.30%	865	72	P.M
Q29	25	2.10%	46.30%	890	74	Soft Factors
Q36	24	2.00%	44.40%	963	80	Hard Factors
Q10.1	24	2.00%	44.40%	939	78	P.M
Q22	23	1.90%	42.60%	986	82	Soft Factors

Q. No	N	%	% of Cases	Cum m.	Cum %	Section
Q17.1	22	1.80%	40.70%	1031	86	B.I
Q43	22	1.80%	40.70%	1053	88	Hard Factors
Q17.3	21	1.80%	38.90%	1074	90	B.I
Q28	19	1.60%	35.20%	1093	91	Soft Factors
Q18.1	17	1.40%	31.50%	1110	93	B.I
Q18.2	17	1.40%	31.50%	1127	94	B.I
Q17.2	16	1.30%	29.60%	1143	95	B.I
Q18.3	15	1.30%	27.80%	1158	97	B.I
Q10.2	13	1.10%	24.10%	1171	98	P.M
Q18.4	11	0.90%	20.40%	1193	99	B.I
Q11.3	11	0.90%	20.40%	1182	99	P.M
Q10.3	7	0.60%	13.00%	1200	100	P.M

Table- 4. 4 : SPSS Pareto Analysis cumulative percentage

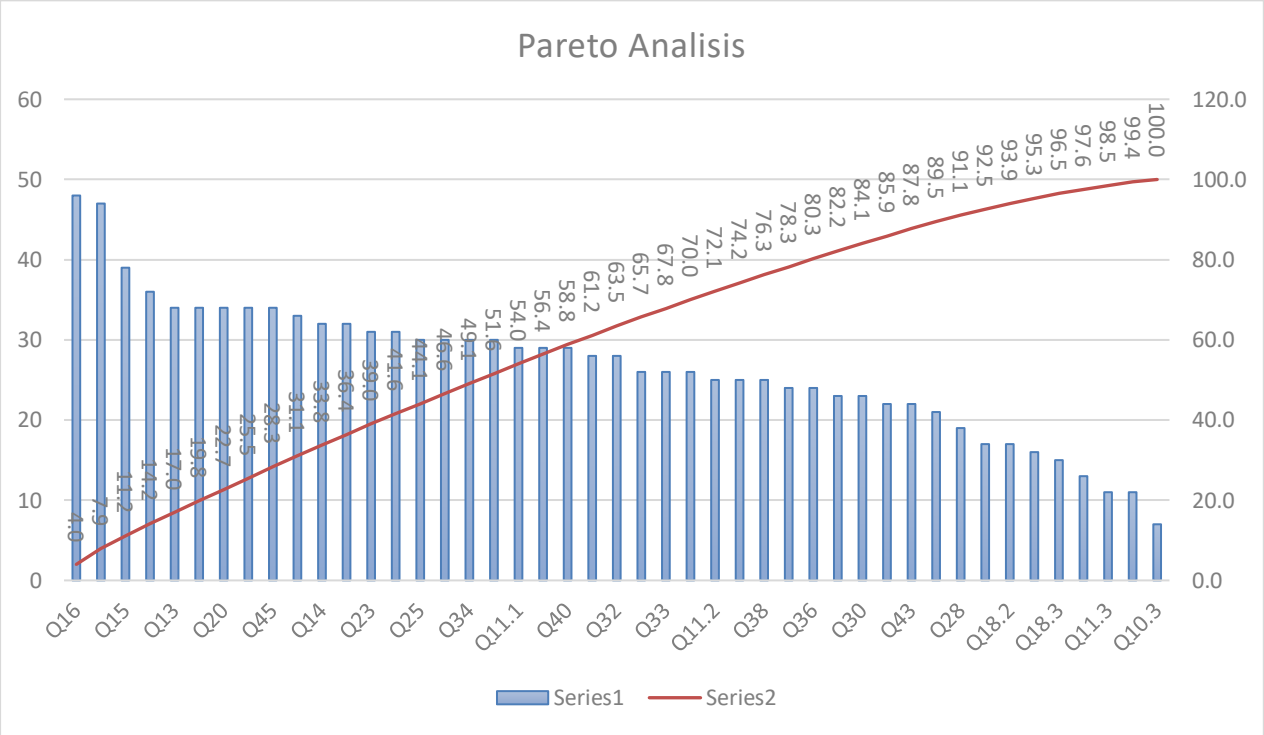


Figure 4. 1 SPSS Pareto Analysis

The sections in the analysis are the same as stated in chapter 3 i.e. B.I – Business Intelligence, P.M – Performance Management. Top 10 factors have been arranged

in descending order based on the percentage of response towards most essential factors, which is denoted by N in the table below.

S. No.	Q. No.	Factor Importance	Sections	N	Percent
1	Q16	Investing in new computer	B.I	48	4.00%
2	Q12	Assessing Performance	P.M	47	3.90%
3	Q15	Identifying targets and goals for improvement	P.M	39	3.30%
4	Q21	Analyse the data	B.I	36	3.00%
5	Q13	Comparing performance with Competitors	P.M	34	2.80%
6	Q19	Systematic and regular collection of data	B.I	34	2.80%
7	Q20	Reporting on data	B.I	34	2.80%
8	Q42	Speed of operations	Hard CSF	34	2.80%
9	Q45	Customers' satisfaction for monitoring competitiveness	Hard CSF	34	2.80%
10	Q24	Human resource	Soft CSF	33	2.80%

Table- 4. 5 : Critical Factors Based on Participants Feedback.

The table 4.7 shows top 10 important factors in the survey based on the primary analysis. According to the participant's new computer investment, assessing performance, identifying goals for improvement is very crucial for development in the retail sector.

4.5 DISCUSSION

The primary goal of the research was to answer research questions; RQ1 “Determine the factors that affect BI tools implementation in Indian retail SME” and RQ2 “How BI tool adoption can enhance operational performance in Indian retail SME’s.” The research Objective was set to determine those questions as given in the research framework.

The RQ1 has been determined in the literature review investigating the advantage of BI tools as RO1 and determining factors influencing SME’s as RO2. Moreover, RQ2 was determined by accomplishing RO3 by actualizing questionnaires in the target sector. The questionnaire analysis helped to find barriers of obstruction for BI tool implementation. The investigation led to defining the concept model in figure 2.7 with the combination of soft and hard factors of performance management in a continuous cycle that can enhance operational performance. The summary of the top three factors of performance management has been defined in figure 5.1, which was selected from the survey analysis. For effective operational performance, these essential factors selected in survey analysis need to be integrated and monitored continuously in the concept model.

Successful BI adoption leads to effective business operations that could thrive in a corporation in extreme competition. As per data issued by International Data Corporation (IDC), BI in India showed a significant increment of 9.6% in 2019 and is expected to grow further, whereas retail SME’s in India constitute 60% of private consumption contributing 35% of GDP. Thus, BI software is getting more known to the retail market with time, while software providers are trying to make their BI platform more suitable for the market.

It becomes very crucial for the retail SME’s that how much investment return they can receive before investing in the software. If these sophisticated BI tools are not selected, it probably wastes not only the money of the corporation but also the time, resources, and morale of the employees. It is essential to understand the requirement of the company and develop a systematic approach to adopt a suitable BI platform.

India is already a pool of people talent and labor, catching up to technology as well as resources, when allocated to similar, small, and supportive units, can boost up the Indian economy to another level. Adapting to the changing needs of dynamism, even SME's can come at talents with massive business units, which will not only contribute to GDP as well as creating employment opportunities and developing country as a whole—giving this sector an immunity through various supportive measures.

- Liberalization to aid protection against competitiveness, promotion of the sector, and the very highlighted moment of 2014 "Make in India" to aid the sector (Novo Juris, 2020).
- In 2020, announced "Atma Nirbhar Bharat" Scheme which has driven upward revised limits (Novo Juris, 2020)

Other relevant Schemes are,

- Credit Guarantee Scheme,
    - Credit guarantee – 100% cover (Principal-Interest)
    - Period – 4 Years
    - Last Date: 3 Oct 2020
    - 12 Month Moratorium
- Subordinate Debt for NPA

  For stressed account provision worth Rs. 20,000 Crores has been made.

- Fund of Fund

  Pool of Rs. 50,000 Crores – for expansion and growth of SME's through equity(Novo Juris, 2020).

Hence, all these positive attributes give the sector scope of hope, future expansion, and increased scalability of the sector which is profitable for future periods.

Chapter-5: CONCLUSION AND FUTURE WORK

5.1 Conclusion

The dissertation focused on Indian retail SME's to determine the factors influencing BI tool adoption in targeted Indian retail SME's. The study discerns CSF of BI tools, performance management, SME's in India to understand influential factors using literature review as well as a cross-sectional questionnaire survey. The research unfolds the benefit of BI tools which can assist in better decision making for Indian retail SME's to compete in this technology-driven market. The exiguous benefit of BI enlisted in the literature review is quick decision making, efficient working, forecasting sales, On-time data availability, etc. This led to understanding the various benefits of BI, which could benefit the Indian retail market.

The data analysis from the survey clearly states that it is essential for Indian retail SME's to "invest in new computer technology" to enhance operational performance, which in turn affects the implementation of BI tools. If SME's will be lacking for fundamental IT investment, then BI adoption will not be possible. The second most crucial factor derived from the survey is "Analysis of data.", this incorporates that most of the Indian retail SME's know that data analysis is very critical. BI tools are one of the most useful techniques used for analyzing the data in the most logical form. These attributes helps in understanding that BI adoption can help in the development of the sector.

Another critical factor that has the most responses in the performance management section of the survey is that target and goal identification is a significant factor for Indian retail SME's. It means that most of the retail SME's know that it is very crucial to define goals the proposed model in the literature review suggests that providing input as a target or purpose in the model can lead to performance improvement. Therefore, it can be stated that the primary survey backup the model given in the literature work.

The research provides a conceptual model for an effective BI system with activities defined as improving operational effectiveness are identifying, gathering, collecting, processing, analyzing, and monitoring data. The model suggests the following functioning:

1. Gathering of data
2. Defining systematic information
3. Determining success factor.
4. Measuring performance/hard factors.
5. Set effective goals for enhancement

These suggestions conclude that operational management functioning in Indian retail SME's can be improved by efficient and effective integration of the BI tool.

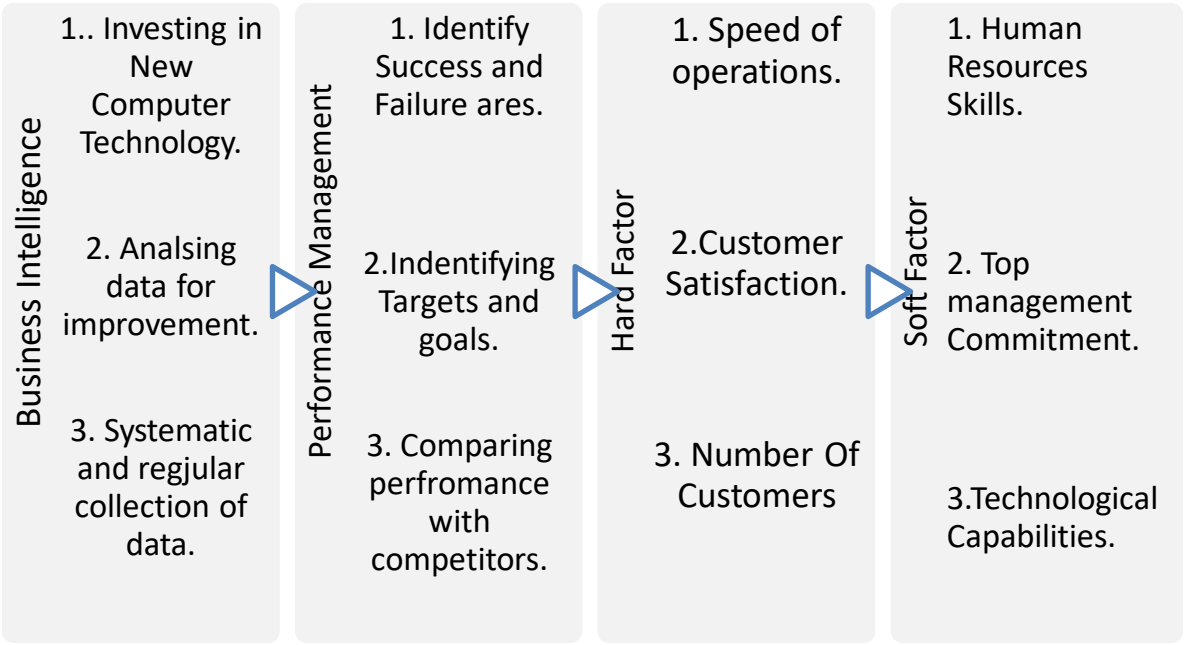


Figure 5. 1 : Top 3 Factors that affect in the Indian retail sector based on survey

Understanding the critical factors is very important for the study of the target sector. Figure 6.2 represents the top 3 factors from each section according to the survey based on participation selected in the retail industry.

Based on the literature study, we can say that BI tools can be implemented in most of the business positions to enhance decision making. This ability helps in setting new targets for the corporation by adopting the most from the operational performance. The model given in the literature is a continuous process of improvement by choosing a BI tool. Thus, we can say that the implantation of the

proposed model can lead to constant development in decision making for Indian retail SME's.

As defined in the research framework, the dissertation target to RA "Identify barriers that obstruct the usage of BI tools within retail SME's." According to the survey, Human Resources, Commitment to Top Management, and technological capabilities are the major soft factors responsible for the increase in business capabilities. On the other hand, Investment in new technology is the most challenging barrier for the adoption of BI in Indian retail SME's.

5.2 Contribution and Implication

The unique feature of the investigation defines the coexistence of multiple disciplines to determine research questions. These disciplines are.

- Indian retail sector
- SME Sector
- Performance management
- BI tools

The research understands the benefit of BI implication in performance management for Indian retail SME's at the operation level. The secondary analysis from the review confirms that no such attempts to compare these multidiscipline have been done before.

The investigation shows that previous research is either focussed on understanding the concept of BI tool framework, management skills using BI, and hardly any prior research has concentrated on the association between operational level and BI tools. The research defines a unique concept to understand the factors for BI tool adoption. However, this uniqueness led the research to compare the IT model as a reference for the BI concept model.

Furthermore, the investigation highlights the importance of retail SME's in the Indian market with the help of SWOT analysis on SME's. The investigation address to overcome the weakness of Indian retail SME's by BI adoption. The literature supports the research aim to identify barriers that obstruct BI adoption for Indian retail SME's.

5.3 Limitations

As the research is limited to the questionnaire survey and literature review details of insights are missing which could be accomplished by In-depth interviews. There are very few Indian Retail SME's who are using BI tools for their operations also the lack of response due to the Covid-19 situation for the interview led to this limitation in the study. It was also noted while contacting participants for the survey that most of the employees working in Indian retail SME's are unaware of the benefits of BI.

The research considers all Indian retail SME's as one sector; however, there might be SME's where the BI tool adoption might be different or not suitable. The research neglects focussed analysis of a company to understand the requirement which could be part of future work.

Another limitation is that the survey does not encounter the personal perception of the participants. There could be a possibility that few individuals in different SME's might have different viewpoints. However, the reliability test was conducted to verify the similarity index in terms of alpha value. Still, some of the factors which were having almost similar cumulative percentage might differ based on different perception.

5.4 Recommendation for Future Work

All retail division has different characteristics, requirement, creating a diverse environment to study, which might affect the implementation of BI tool differently. Moreover, some business might need a specific tool which has to be service-oriented designed for a particular purpose. However, investment in developing those tools is very difficult for SME's. Thus, future research could be extended to understand the specific business requirements of SME's.

The research topic has a vast scope for future study, which could be exploring specific tools, involving the role of data mining, warehousing, OLAP in BI tools can be analyzed. Also, in future author would like to compare some of the best and cheap tools available in the market, which could effectively be utilized for Indian retail SME's.

The literature survey using secondary data establish that SME's do not have enough resources to support operational performance. The resource factor is further supported by the survey, as 44.4% of the participants have defined that cost is an essential factor for the establishment of the BI tool in Q10.1. Thus, It becomes crucial to determine the reliable source of BI tools, which can offer similar services at affordable prices. Future work can establish the BI platform, which is most useful for retail SME's in India.

It is vital to select proper technological tools for development as innovation is bringing changes very often, and it becomes challenging to provide training to staff, make changes, and adapt to new technology very often. In future work, the author would like to take detailed interviews from the different businesses of retail SME's, which can give an in-depth understanding of the insights of corporations. The meetings were planned for the completion of the dissertation but could not be accomplished because of the Covid-19 situation as most of the retail SME's were closed.

5.4.1 Recommendation for Indian retail SME's

During the investigation, it was found that no retail SME's which were contacted are using Cloud-based BI platforms. Cloud-based BI platforms allow the corporation to pay as per their usage instead of buying the full software. Platforms like Monday.com, adversity, etc., which provide services like the big brain, which is pay and use. Although cloud BI technology is relatively new, it could have an excellent future for Indian retail SME's.

In this competitive market, it becomes very crucial to get useful data to the most decision-maker with bogging them. There is vast scope for retail SME's to enhance performance by using the best BI tools. The retail SME's should implement free, open-source BI tools available in the market, which provide an amazing dashboard, interactive reports for analysis before investing their time and money in new paid software. Some of the free BI tools available is Tableau Public, Fine report, BIRT, Databox, etc., these tools provide an open platform for an analyst to track the positioning of work and data analysis.

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Chapter-7 APPENDIX

Questionnaire and Responses

Q1. Which of the following is the specialty of your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Retail of agricultural raw materials and live animals.	5	8.8	8.8	8.8
	Retail of food, beverages and tobacco.	18	33.3	33.3	42.1
	Retail of household goods.	6	10.5	10.5	52.6
	Retail of information and communication equipment.	14	28.1	28.1	80.7
	Retail of other machinery, equipment and supplies.	9	15.8	15.8	96.5
	IT	2	3.5	3.5	100.0
	Total	54	100.0	100.0	

Q2. What is the number of employees in your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.8	1.8	1.8
	Less than 11.	13	22.8	22.8	24.6
	Between 11 and 51.	17	29.8	29.8	54.4
	Between 51 and 251.	12	21.1	21.1	75.4
	More than 250.	11	24.6	24.6	100.0
	Total	54	100.0	100.0	

Q3. What is your company's Annual turnover in Rupee?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.8	1.8	1.8
	Less than 1 Cr	12	21.1	21.1	22.8
	Between 1 to 5 Cr	14	24.6	24.6	47.4
	Between 5 to 10 Cr	3	5.3	5.3	52.6
	Above 10 Cr	4	12.3	12.3	64.9
	I do not want to disclose.	20	35.1	35.1	100.0
	Total	54	100.0	100.0	

Q4. What is your job title?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		54			
	Total	54	100.0	100.0	

Q5. Does your company use any computer technology (software) to support decision making?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	3.5	3.5	3.5
	Yes	37	66.7	66.7	70.2
	No	10	19.3	19.3	89.5
	I don't know.	5	10.5	10.5	100.0
	Total	54	100.0	100.0	

Q6. Do you think that business development needs exist in your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.8	1.8	1.8
	Yes	43	77.2	77.2	78.9
	No	5	10.5	10.5	89.5
	Not aware about it.	5	10.5	10.5	100.0
	Total	54	100.0	100.0	

Q7. To the best of your knowledge, does your company define a clear performance monitoring and measurement plan?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.8	1.8	1.8
	Yes, Such a plan is implemented.	31	57.9	57.9	59.6
	No, but such a plan should be under consideration.	21	38.6	38.6	98.2
	No, and we don't need such a plan.	1	1.8	1.8	100.0
	Total	54	100.0	100.0	

Q8. Which of the following describe your company's performance management policy? (Please select all the applicable choices)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.8	1.8	1.8
	Periodic short-term meetings or motivat...	18	31.6	31.6	33.3
	Employees' appraisals and bonuses scheme.	17	31.6	31.6	64.9
	A continuous management process.	18	33.3	33.3	100.0
	Total	54	100.0	100.0	

Q9. Which of the following describes the perception of performance in your company? (Please rank the above statements of the performance management approach within your organization.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	3.5	3.5	3.5
	Eliminating operational defects.	17	29.8	29.8	33.3
	Increasing profits.	21	36.8	36.8	70.2
	Gaining competitive advantage	12	22.8	22.8	93.0
	Others	2	7.0	7.0	100.0
	Total	54	100.0	100.0	

Q10.1 According to you how much important is Operations efficiency (Cost) for success of operations in your company? (Please rank the above statements of the performance management approach within your organization.) Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	24	44.4	44.4	44.4
	Important	21	38.9	38.9	83.3
	Somewhat Important	9	16.7	16.7	100.0
	Total	54	100.0	100.0	

Q10.2 According to you how much important is Operations effectiveness (Time) for success of operations in your company? (Please rank the above statements of the performance management approach within your organization.) Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	13	24.1	24.1	24.1
	Important	28	51.9	51.9	75.9
	Somewhat Important	13	24.1	24.1	100.0
	Total	54	100.0	100.0	

Q10.3 According to you how much important is Operations Competitiveness for success of operations in your company? (Please rank the above statements of the performance management approach within your organization.) Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	7	13.0	13.0	13.0
	Important	17	31.5	31.5	44.4
	Somewhat Important	30	55.6	55.6	100.0
	Total	54	100.0	100.0	

Q11.1 According to you how important is Customer Feedback. Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	29	53.7	53.7	53.7
	Important	10	18.5	18.5	72.2
	Somewhat Important	15	27.8	27.8	100.0
	Total	54	100.0	100.0	

Q11.2 According to you how important is Financial indicators (e.g. turnover orprofit). Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	25	46.3	46.3	46.3
	Important	20	37.0	37.0	83.3
	Somewhat Important	9	16.7	16.7	100.0
	Total	54	100.0	100.0	

Q11.3 According to you how important is Operational indicators (e.g. deliveries ot throughput). Rank the choices in order of importance (1,2,3,..) where "1" is the most important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	11	20.4	20.4	20.4
	Important	18	33.3	33.3	53.7
	Somewhat Important	25	46.3	46.3	100.0
	Total	54	100.0	100.0	

Q12 How would you rate assessing performance to identify success and failure areas ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	47	87.0	87.0	87.0
	Somewhat Important	6	11.1	11.1	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q13. How would you rate comparing performance with the performance of competitors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	34	63.0	63.0	63.0
	Important	2	3.7	3.7	66.7
	Somewhat Important	16	29.6	29.6	96.3
	Not So Important	2	3.7	3.7	100.0
	Total	54	100.0	100.0	

Q14 How would you rate comparing the current performance with previous performance.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	32	59.3	59.3	59.3
	Important	13	24.1	24.1	83.3
	Somewhat Important	8	14.8	14.8	98.1
	Not at all Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q15 How would you rate Identifying targets and goals for improvement?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	39	72.2	72.2	72.2
	Important	8	14.8	14.8	87.0
	Somewhat Important	6	11.1	11.1	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q16. Do you think that investing in new computer technologies may enhance your company's operational performance?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	48	88.9	88.9	88.9
	Important	4	7.4	7.4	96.3
	Somewhat Important	2	3.7	3.7	100.0
	Total	54	100.0	100.0	

Q17.1 Please rank the influence operational requirements factors to encourage the adoption of advanced information systems in your company? (Rank the choices in order of importance (1,2,3,..) where "1" is the most important.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	22	40.7	40.7	40.7
	Important	18	33.3	33.3	74.1
	Somewhat Important	10	18.5	18.5	92.6
	Not So Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q17.2 Please rank the influence of Reducing operational cost to encourage the adoption of advanced information systems in your company? (Rank the choices in order of importance (1,2,3,..) where "1" is the most important.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	16	29.6	29.6	29.6
	Important	23	42.6	42.6	72.2
	Somewhat Important	11	20.4	20.4	92.6
	Not So Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q17.3 Please rank the influence of Improving performance to encourage the adoption of advanced information systems in your company? (Rank the choices in order of importance (1,2,3,..) where "1" is the most important.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	21	38.9	38.9	38.9
	Important	11	20.4	20.4	59.3
	Somewhat Important	19	35.2	35.2	94.4
	Not So Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q18.1 According to you how change resistance may hinder the adoption of new information systems in your company? (Rank the choices in order of importance (1,2,3,..) where "1" is the most important.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	17	31.5	31.5	31.5
	Important	21	38.9	38.9	70.4
	Somewhat Important	7	13.0	13.0	83.3
	Not So Important	9	16.7	16.7	100.0
	Total	54	100.0	100.0	

Q18.2 According to you how much cost effectiveness important for the adoption of new information systems in your company? (Rank the choices in order of importance (1,2,3,..) where "1" is the most important.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	17	31.5	31.5	31.5
	Important	24	44.4	44.4	75.9
	Somewhat Important	9	16.7	16.7	92.6
	Not So Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q18.3 According to you Technical requirement is important for the adoption of new information systems in your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	15	27.8	27.8	27.8
	Important	10	18.5	18.5	46.3
	Somewhat Important	23	42.6	42.6	88.9
	Not So Important	6	11.1	11.1	100.0
	Total	54	100.0	100.0	

Q18.4 According to you how much does training needs is important for the adoption of new information systems in your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	11	20.4	20.8	20.8
	Important	18	33.3	34.0	54.7
	Somewhat Important	8	14.8	15.1	69.8
	Not So Important	16	29.6	30.2	100.0
	Total	53	98.1	100.0	
Missing	System	1	1.9		
Total		54	100.0		

Q19. According to you how important is Systematic and regular collection of data for a company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	34	63.0	63.0	63.0
	Important	18	33.3	33.3	96.3
	Somewhat Important	1	1.9	1.9	98.1
	Not at all Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q20. According to you how important is Reporting on data to gain usable knowledge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	34	63.0	63.0	63.0
	Important	19	35.2	35.2	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q21. According to you how important is Analyse the data to identify areas for improvement?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	36	66.7	66.7	66.7
	Important	15	27.8	27.8	94.4
	Somewhat Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q22. How would you rate Research and development capabilities for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	23	42.6	42.6	42.6
	Important	21	38.9	38.9	81.5
	Somewhat Important	9	16.7	16.7	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q23. How would you rate the importance of Top management commitment for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	31	57.4	57.4	57.4
	Important	17	31.5	31.5	88.9
	Somewhat Important	6	11.1	11.1	100.0
	Total	54	100.0	100.0	

Q24. How would you rate the importance of Human resource management skills for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	33	61.1	61.1	61.1
	Important	14	25.9	25.9	87.0
	Somewhat Important	4	7.4	7.4	94.4
	Not So Important	2	3.7	3.7	98.1
	Not at all Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q25. How would you rate the importance of Technological capabilities for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	30	55.6	55.6	55.6
	Important	20	37.0	37.0	92.6
	Somewhat Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q26. How would you rate the importance of External environment for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	30	55.6	55.6	55.6
	Important	15	27.8	27.8	83.3
	Somewhat Important	8	14.8	14.8	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q27. How would you rate the importance of Information and communication channels for performance monitoring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	26	48.1	48.1	48.1
	Important	21	38.9	38.9	87.0
	Somewhat Important	6	11.1	11.1	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q28. The flexibility of operations is an important feature of modern enterprises. (Please rate the above statement as 1-5; 1 represent extremely agree, 5 represent extremely disagree)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	19	35.2	35.2	35.2
	Important	17	31.5	31.5	66.7
	Somewhat Important	3	5.6	5.6	72.2
	Not So Important	9	16.7	16.7	88.9
	Not at all Important	6	11.1	11.1	100.0
	Total	54	100.0	100.0	

Q29. It is important to make suitable investments in information technology to enable the achievement of successful performance management plans.(Please rate the above statement as 1-5; 1 represent extremely agree, 5 represent extremely disagree)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	25	46.3	46.3	46.3
	Important	11	20.4	20.4	66.7
	Somewhat Important	6	11.1	11.1	77.8
	Not So Important	7	13.0	13.0	90.7
	Not at all Important	5	9.3	9.3	100.0
	Total	54	100.0	100.0	

Q30. Making changes in the enterprise's operations is important to deal with the emerging opportunities and challenges for growth and improvement. (Please rate the above statement as 1-5; 1 represent extremely agree, 5 represent extremely disagree)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	23	42.6	42.6	42.6
	Important	13	24.1	24.1	66.7
	Somewhat Important	4	7.4	7.4	74.1
	Not So Important	7	13.0	13.0	87.0
	Not at all Important	7	13.0	13.0	100.0
	Total	54	100.0	100.0	

Q31. How would you rate the influence of the Operations efficiency on the performance of your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	28	51.9	51.9	51.9
	Important	23	42.6	42.6	94.4
	Somewhat Important	1	1.9	1.9	96.3
	Not So Important	1	1.9	1.9	98.1
	Not at all Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q32. How would you rate the influence of the Operations' effectiveness on the performance of your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	28	51.9	51.9	51.9
	Important	22	40.7	40.7	92.6
	Somewhat Important	2	3.7	3.7	96.3
	Not So Important	2	3.7	3.7	100.0
	Total	54	100.0	100.0	

Q33. How would you rate the influence of the Competitiveness on the performance of your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	26	48.1	48.1	48.1
	Important	19	35.2	35.2	83.3
	Somewhat Important	5	9.3	9.3	92.6
	Not So Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q34. According to you how important is Financial turnover to monitor and measure the operation efficiency of company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	30	55.6	55.6	55.6
	Important	23	42.6	42.6	98.1
	Somewhat Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q35. According to you how important is Inventory turnover to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	26	48.1	48.1	48.1
	Important	25	46.3	46.3	94.4
	Somewhat Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q36. According to you how important is Purchasing discount to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	24	44.4	44.4	44.4
	Important	21	38.9	38.9	83.3
	Somewhat Important	6	11.1	11.1	94.4
	Not So Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q37. According to you how important is Cost of operations to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	29	53.7	53.7	53.7
	Important	22	40.7	40.7	94.4
	Somewhat Important	2	3.7	3.7	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q38. According to you how important is Available Liquidity to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	25	46.3	46.3	46.3
	Important	24	44.4	44.4	90.7
	Somewhat Important	5	9.3	9.3	100.0
	Total	54	100.0	100.0	

Q39. According to you how important is Return on investments to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	31	57.4	57.4	57.4
	Important	15	27.8	27.8	85.2
	Somewhat Important	6	11.1	11.1	96.3
	Not So Important	2	3.7	3.7	100.0
	Total	54	100.0	100.0	

Q40. According to you how important is Payback periods to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	29	53.7	53.7	53.7
	Important	20	37.0	37.0	90.7
	Somewhat Important	5	9.3	9.3	100.0
	Total	54	100.0	100.0	

Q41. According to you how important is Deliveries lead times to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	30	55.6	55.6	55.6
	Important	21	38.9	38.9	94.4
	Somewhat Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q42. According to you how important is Speed of operations to monitor and measure the operating efficiency of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	34	63.0	63.0	63.0
	Important	16	29.6	29.6	92.6
	Somewhat Important	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Q43. According to you how important is Number of competitors for monitoring and measureing the Competitiveness of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	22	40.7	40.7	40.7
	Important	21	38.9	38.9	79.6
	Somewhat Important	10	18.5	18.5	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Q44. According to you how important is Number of customers for monitoring and measuring the Competitiveness of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	32	59.3	59.3	59.3
	Important	14	25.9	25.9	85.2
	Somewhat Important	5	9.3	9.3	94.4
	Not So Important	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Q45. According to you how important is Customers' satisfaction for monitoring and measuring the Competitiveness of the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	34	63.0	63.0	63.0
	Important	17	31.5	31.5	94.4
	Somewhat Important	2	3.7	3.7	98.1
	Not So Important	1	1.9	1.9	100.0
	Total	54	100.0	100.0	