Czech University of Life Science in Prague

Faculty of Economics and Management

Department of Information Engineering

Diploma Thesis Topic:

Business intelligence

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DIPLOMA THESIS ASSIGNMENT

Bc. Chintankumar Patel

Systems Engineering and Informatics
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Thesis title

Business Intelligence

Objectives of thesis

The main objective of this thesis is to develop Business Intelligente solution. This Diploma thesis on Business intelligence (BI) is depend on analysis of building Business intelligence in companies and implementation of BI in companies.
While building Business intelligence architecture know and solve the occurring issues in business. This thesis covers solution in Business intelligence.

For solution in this thesis analysis and using some basic components of BI like design of ETL and data pumps, design of data warehouse, data analysis via OLAP.

Methodology

In this thesis main purpose of solving issues occurring while building Business intelligence and implementation and for that analyze of case studies and use of information sources.

And create architecture of BI by referring analyzes and After that Implementation of basic Business intelligence solutions.

Based on knowledge and information sources and case studies the conclusion of the thesis will be formulated.

The proposed extent of the thesis

60 – 80 pages

Keywords

Business intelligence, Data warehouse, ETL, OLAP , BI solutions, BI tools, Key performance indicators

Recommended information sources

ECKERSON, Wayne W. Performance dashboards: measuring, monitoring, and managing your business. John Wiley & Sons, 2010.

CHAUDHURI, Surajit; DAYAL, Umeshwar; NARASAYYA, Vivek. An overview of business intelligence technology. Communications of the ACM, 2011, 54.8: 88-98.

KIMBALL, Ralph; ROSS, Margy. The data warehouse toolkit: the complete guide to dimensional modeling. John Wiley & Sons, 2011.

TYRYCHTR, J. – VASILENKO, A. Business Intelligence in Agribusiness – Fundamental Concepts and Research. Brno: KONVOJ, spol. s r. o. , 2015, 100s. ISBN 978-80-7302-170-2.

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Declaration

I am declaring that the Diploma thesis based on topic Business Intelligence is my research and own work. In this Diploma thesis all the references and sources I used that are mentioned in Bibliography.

Prague, 2022 Signature

Acknowledgement

The opportunity of coming here and studying in Prague, Czech Republic I would like to thank you my parents and my sister who always supported and encourage me in my life and thankful to my god who provide me strength.

Also, I would like to thank you to The Czech university of life sciences Prague and my supervisor doc. Ing. Jan Tyrychtr, Ph.D., who provide me this beautiful thesis topic and gave me opportunity to research on it and always supporting to do my Diploma Thesis work.

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Business intelligence

Abstract

The motivation behind BI execution is to further develop execution by making an appropriate setting in which to settle on choices in the association. The bi's design is intensely affected by the organization's set of experiences and improvement. Business knowledge is one procedure to tending to the essential worries of data the board. In this theory fundamental reason for settling issues happening while at the same time fabricating business insight and execution and for that examine of contextual analyses and utilization of data sources. In this research work, we are analyzing the relation of business intelligence with major three variables. Decision making quality, information quality and data quality; these are the main variables on which we are applying the statistical analysis through a questionnaire for companies where managers are designated. The methods utilized are the swot investigation, BCG examination, and situation examinations are three of the most notable and broadly utilized vital examination draws near. The primary objective of this review was to check out the job of business insight in essential administration. We adjusted both subsequent to building up the essential parts of data requests and indicating the practical abilities of bi apparatuses. Information mining innovations, specifically, can uncover surprising or secret connections in information, which can offer firms with significant data. Revealing and OLAP advances assume a significant part in essential administration since they give a far reaching image of an association's exhibition. The organization's information, just as that of its essential rivals and clients, is very simple to get and process.

Keywords: *Business intelligence, Data warehouse, ETL, OLAP, BI solutions, BI tools, Key performance indicators*

Business intelligence

Abstraktní

Motivací za prováděním Business intelligence (BI) je dále rozvíjet toto řešení vytvořením vhodného nastavení. Návrh business insight (bi) je intenzivně ovlivněn souborem zkušeností a zlepšení v organizaci. Obchodní znalosti jsou jedním z postupů směřující k základní starosti o data. Pro řešení řady problémy, které se dějí při současném vytváření obchodního náhledu a jeho prováděním, je zkoumání kontextových analýz a využití zdrojů dat. V této výzkumné práci analyzujeme vztah BI s hlavními třemi proměnnými: kvalita rozhodování, kvalita informací a kvalita dat; to jsou hlavní proměnné, na které je v práci aplikována statistická analýza prostřednictvím dotazníku šetření mezi manažery vybrané společnosti.

Používané metody jsou SWOT analýza, BCG analýza a situační analýza, které patří mezi tři nejrozšířenější přístupy, které jsou v práci popsány. Primárním cílem tohoto přehledu bylo prověřit práci bi na základní administrativu. V práci jsou upraveny podstatné části datových požadavků a indikace praktických schopností bi aparátu.

Inovace v oblasti dolování informací mohou konkrétně odhalit překvapivé nebo tajné souvislosti v informacích, které mohou firmám nabídnout významné údaje. Pokroky v oblasti odhalování a OLAP hrají významnou roli v základní správě, protože poskytují dalekosáhlý obraz organizace. Informace organizace, stejně jako informace o jejích hlavních konkurentech a klientech, je velmi snadné získat a zpracovat.

klíčová slova: *Business intelligence, datový sklad, ETL, OLAP, BI řešení, BI nástroje, klíčové ukazatele výkonu*

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1 INTRODUCTION

1.1 OVERVIEW

Mainly BI is depending on three segments across every corporate sector, and we may differentiate them as business intelligence with major three variables. Decision making quality, information quality and data quality. Here only have to find out that on which parameter or variable the BI has core relation. In a few business settings, information can be a useful asset for separating information and settling on key administrative choices. To build information in associations, one of the most contemporary administration devices is to utilize that information and investigate it. Settling on ideal and exact choices requires an order of certifiable and complete information, which conventional data frameworks can't create to the suitable norm. In the present cutthroat market, an administration dashboard is a critical apparatus for uniting all information on one page and basically assessing it involving diagrams and structures for chiefs and staff. Directors of associations that utilization dashboards dispense their opportunity to accomplish basic and precise choices, rather than with nothing to do perusing the substance of perplexing and tremendous reports and separating data from them. They likewise use their upper hand, which involves quick response and changes to conditions. Associations who have gotten a handle on the advantage of having continuous data are logically using this complex and significant innovation, and thus, this peculiarity is turning out to be more common.

Business Intelligence (BI) is an advanced umbrella word composed by Howard Dresdner of the Gartner Group in 1989 to portray a blend of thoughts and techniques for additional developing business decision utilizing reality based mechanized emotionally supportive networks. Preparation books and chief data frameworks are two terms that are sometimes utilized reciprocally. A business insight framework (BIS) is an information driven DSS that essentially works with questioning of a recorded data set and the age of intermittent synopsis reports. Throughout the long term, information driven DSSs have been alluded to as information arranged DSSs, recovery just DSSs, Executive Information Systems, OLAP frameworks, and Business Intelligence frameworks Business insight (BI) is a bunch of abilities, devices, approaches, and arrangements that help supervisors in acquiring a superior comprehension of their business circumstances. Individuals can get a brief look at the past, present, and future utilizing BI advancements. With the execution of BI methodologies, the current contact data hole between top administrators and center directors will evaporate, and

chiefs will actually want to acquire excellent data at all levels and whenever. Specialists and experts can likewise further develop their exercises utilizing basic instruments and accomplish better outcomes.

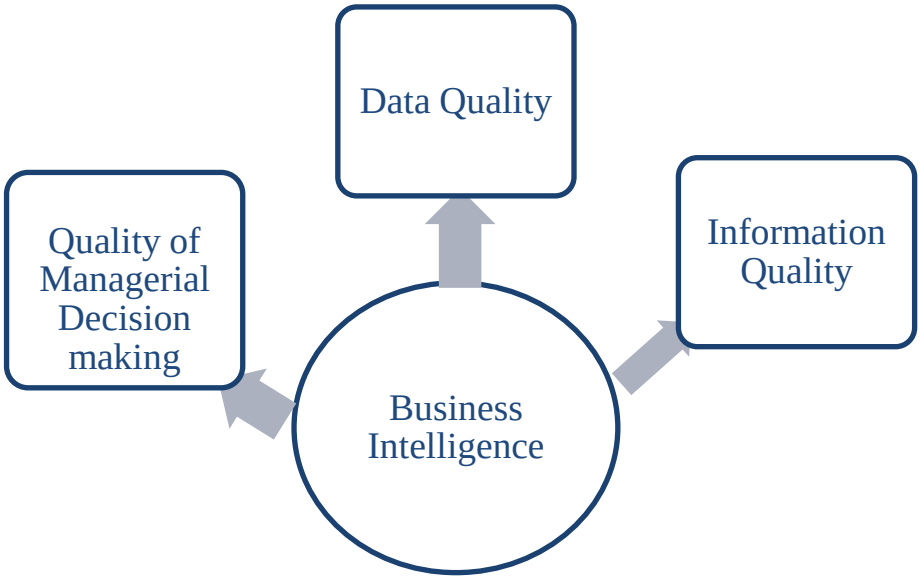


Figure 1. Conceptual framework of the study

The study's goal is to identify the various Business Intelligence Systems used by banks, analyze them, and model them in relation to employee and bank performance and decision-making quality. The independent variable in this study is Business Intelligence System factors, while the dependent variables are Quality of Decision Making and Employee and Bank Performance.

1.2 BASIC COMPONENTS OF BI

The following are the five major components of BI:

- **OLAP (Online Analytical Processing):** This component of business knowledge assists chiefs with filtering and picks information totals for key checking. An accreditation in business insight empowers entrepreneurs to utilize information to make enhancements to generally speaking business processes with the assistance of specific programming arrangements.

- **Advanced Analytics or Corporate Performance Management (CPM):** Progressed Analytics, regularly known as Corporate Performance Management (CPM), is a bunch of instruments that permits business pioneers to inspect item or administration insights. An inexpensive food business, for instance, may focus on the arrangements of

unequivocal things and make close by, commonplace, and public changes to menu board offers therefore. The information may similarly be used to predict which features another thing would win in.

- **Real-time business intelligence:** In the present adaptable world, this sort of BI ends up being logically popular. A business can respond to progressing designs in email, illuminating systems, and shockingly automated shows using programming programs. Since everything happens constantly, a business visionary can report fascinating limits that exploit what's going on as of now. Data can be used by sponsors to make inventive confined time deals, similar to a coupon for hot soup on a cool day. Presidents may be enthusiastic about after the hour of day and area of customers that point of interaction with a site so that publicizing can offer novel game plans continuously while the client is on the site.

- **Data Warehousing:** Business leaders can utilize information warehousing to channel through subsets of information and investigate connected parts that can assist them with driving business. Investigating deals information throughout some stretch of time can assist with item improvement and occasional contributions. Information warehousing can likewise be utilized to inspect the insights of business activities, just as their interrelationships. Entrepreneurs, for instance, may contrast shipment times in various offices with see which cycles and groups are the most useful. Information warehousing likewise involves putting away a lot of information in manners that benefit the organization's numerous divisions.

- **Sources of Information:** This BI part manages various sorts of put away information. Everything revolves around taking crude information and transforming it into significant information sources that every division can capitalize on to make a positive leverage on the base business. This strategy might prompt the production of information apparatuses that permit information to be gone into a tremendous reserve of accounting pages, pie diagrams, tables, or diagrams that can be utilized for a variety of business applications. Data can be utilized to cultivate presentations that help with getting sorted out plausible gathering destinations, for example. Inspecting the essential parts of information sources can likewise help organizations in settling on reality based choices that take a more comprehensive image of the organization's requirements.

1.3 BUSINESS INTELLIGENCE FOR BUSINESS DEVELOPMENT STRATEGY

Business knowledge (BI) is a kind of data innovation that helps chiefs and organizations settle on better choices. Leaders utilize BI frameworks to acquire top to bottom information on the organization and to characterize and uphold their business methodologies, for example, acquiring an upper hand, further developing the organization's exhibition, reacting all the more rapidly to changes, expanding productivity, and making added esteem overall. Business knowledge is quite possibly the main worries for enormous firms' IT office. To be sure, in the present hyper-cutthroat climate, Business Intelligence gives an opportunity to organizations to improve their activities and anticipate changes in client and purchaser conduct.

Business insight engineering is an assortment of thoughts, instruments, cycles, and innovation that, when joined, give information, and assist a firm with satisfying its essential objectives. It's a structure that permits information to be coordinated in the most proficient manner conceivable. Business knowledge alludes to the transformation of information provided by a data framework, most usually creation information, into data that might be utilized for direction. On a commonsense and specialized level, Business Intelligence is an assortment of PC instruments and programming bundles that guarantee the data handling chain's smooth activity. Business knowledge is a part of a data framework's general engineering. The customary utilizations of an association accommodate the capacity, rebuilding, and alteration of information from the organization's different functional divisions (planned operations, quality administration, promoting, and so on) Every one of these administrations has at least one special applications, and the information is seldom organized or arranged similarly. Each assistance has its own dashboards, and pointers are seldom estimated similarly or as per similar standards somewhere else. It is therefore critical to channel and rename this information in a solitary information distribution center to produce an engineered point of view of each assistance or the whole firm. This information distribution center will permit leaders and investigators to see information on a worldwide scale, permitting them to settle on more educated choices. A dynamic venture is partitioned into four phases:

A. Collection phase:

The source information is utilized in the assortment. This information can be displayed in an assortment of ways. Level records (XML documents, ASCII records, and so on) just as data set frameworks are models (MySQL, PostgreSQL, DB2, ORACLE...). Thus, these information sources are ordinarily assorted, requiring an incorporation cycle to modify them prior to placing them in a choice emotionally supportive network.

B. Phase of Integration:

The main programming layer of the dynamic climate, known as the ETL (Extract, Transform, and Load), happens at this level. This layer incorporates capacities for getting information from different frameworks (interior and outer), handling it, and stacking it into a mediator ODS or the DW straightforwardly (information stockroom). It ensures that the sources are all the more promptly accessible. The subsequent programming layer is ODS, which fills in as an extension between functional creation frameworks and information stockpiling. Before information incorporation in the DW, they are a few types of planning regions. There are two sorts of outline: crude ODS constructions, which contain tables that get crude information from many sources, and "last ODS" compositions, which contain tables with the most design (related fields and requirements) as this information will be frozen in the distribution center; they are near the DW plot. The information in the ODS is just for a short time allotment, and it will be changed, changed, handled, and revised on various occasions prior to being duplicated to the DW. It is feasible to try not to involve the ODS in only one situation: in the event that the DW's information are a straightforward duplicate (i.e., no handling is required, and the separated information won't advance) of creation information (sources), which is deplorably normally never the case in huge associations.

C. Organizational phase:

The third stage, known as the authoritative stage, allows the information to be put away in a distribution center known as an information stockroom. Business-situated, non-unstable, authentic, and recorded information is housed in this distribution center. Once inside the DW, the information should not adjust. These are fixed and united information that will permit us to do different examination and insights. We will actually want to foster information shops once this information has been placed in the information stockroom. The information are by and large practically identical to those in the fundamental DW, yet they are addressed in a manner

that is customized to the capacities or potentially client area's unique requirements (for instance, a devoted DM for the Marketing or Commercial division).

D. Restitution phase:

The last stage is worried about the compensation of the results; we separate three kinds of instruments at this level:

1. Announcing and questioning instruments
2. Investigation instruments
3. Information mining stage

The announcing and question apparatuses permit the functional work force to produce pre-organized and parameterizable reports consistently. They give a layer of business-arranged reflection that permits clients to inquiry the information distribution center through cross-investigation and report all alone. They likewise permit administrators to make dashboards with significant level measurements that integrate numerous exhibition rules.

1.4 TECHNOLOGY ORIENTED CORPORATION, BUSINESS INTELLIGENCE FOR STRATEGIC MANAGEMENT

Since the cutting edge business climate is described by continuous, turbulent change, receptive administration is inadequate for an organization to get by. To remain in front of the opposition, an enterprise should be proactive as its continued looking for future risks and potential outcomes, which it can then use to develop its own future. System is not generally considered as a super durable, fundamental rule for an organization's drawn out points, yet rather as "the creation of a ceaseless stream of upper hands that, when joined, structure a semi-sound key bearing." An enterprise should effectively involve data about itself and its environmental elements to grasp its current and future business climate and settle on proactive key choices and activities. "System must be however great as the data from which it very well might be delivered," composes Herring (1992). The utilization of data with respect to the current and earlier ecological circumstances is deficient. Proactive key choices and exercises, to be compelling, require proactive data and information, that is, data and information that illustrate different fates. Data should be appropriately taken care of to guarantee the viability and nature of this data use. Business insight (BI) is one procedure to tending to the essential worries of data the board. This review sees business data (BI) as a deliberate strategy for get-together,

coordinating, dissecting, and spreading information to settle on better and quicker choices. The expression vital knowledge has been begat to underline the essential setting of BI.

- **Strategic intelligence challenges for the BI process:**

Vital administration is a multi-step process that incorporates creating methodologies as well as executing and checking them. In the writing, a few interaction models for key administration have been advertised. In for all intents and purposes these cycles, there are a few fundamental fixings that are available. The investigation of inner and outer environmental elements, technique creation, system execution, just as assessment and control, are altogether fundamental elements that show up in various scholars' cycle models. Given the idea of shaky business settings, vital administration ought to be considered a consistent action rather than a system that is finished at set periods. Subsequently, system development can't be a once-a-year exertion; rather, a partnership should have the option to adjust its technique consistently.

Vital administration and arranging need the powerful utilization of data Strategic knowledge can help key administration in an assortment of ways, incorporating by helping with the precise assortment, examination, and data of information. The proactive methodology is at the core of vital insight tasks. Key knowledge; for instance, ought to work as radar, notice and making the association aware of dangers and valuable open doors presented by its outside climate. To be proactive, the organization should hold onto these beginning changes before they appear; subsequently, it turns into the change's initiator.

Vital knowledge's initial admonition job Strategic insight centers around observing industry change drivers and the dangers that accompany them, like new innovation or science, new standards or legislative or political activity, new friendly or segment patterns, and new cutthroat conduct, as indicated by essential insight. Besides, essential insight should help the organization in testing the basic presumptions that impact vital reasoning, distinguishing and making up for uncovered shortcomings, executing and adjusting technique to changing cutthroat conditions, and deciding when the procedure is at this point not practical.

1.4.1 Key Decision-Making Using Business Intelligence

Gartner Group begat the adage "business knowledge" during the 1990s In any case, this expression has recently become exceptionally well known, and it has its starting points in 1970s MIS announcing frameworks. Static revealing frameworks of the time were two-layered and needed scientific capacities. The thought of chief data frameworks (EIS) arose in the mid-1980s. This methodology presented undeniable level chiefs and the leader board to mechanized emotionally supportive networks. These frameworks could do dynamic and complex announcing (impromptu or on request), anticipating, pattern investigation, detail examination, and admittance to the key achievement factors. Numerous business things had these elements until the mid-1990s. Then, at that point, for the sake of business knowledge, different new items were made. Today, they've all arrived at a similar resolution: all of a chief's data needs might be met by a Business Intelligent-based data framework. Therefore, the expression "leader data framework" has been supplanted by "business knowledge." By 2005, business insight frameworks had man-made reasoning capacities just as solid scientific capacities.

1.5 SCOPE OF THE STUDY

The following is a list of the study's objectives.

- The study's objectives include determining the role of business intelligence systems in the success of banking systems, determining the impact of business intelligence systems on decision-making quality, and determining the relationship between business intelligence systems and employee performance.

- The strategy produces successful results that are consistent with other research conducted in different sections of the country and in developed and advanced economies.

- Business intelligence systems are made up of nine main elements that were derived through a thorough assessment of the literature as well as academic significance. Furthermore, the research developed a model to properly express and comprehend the relationship between business intelligence systems and decision quality.

2 OBJECTIVES AND METHODOLOGY

2.1 OBJECTIVES OF THESIS

The primary goal of this proposition is to foster business intelligent arrangement. This diploma proposal on business insight (bi) is relying upon examination of building business knowledge in organizations and execution of bi in organizations. While building business knowledge engineering knows and addresses the happening issues in business. This proposition covers arrangement in business insight.

- *To find out the relation between business intelligence and decision making quality*
- *To find out the relation between bi and information quality*
- *To find out the relation between bi and data quality*
- *To concentrate on business insight as a business improvement methodology.*
- *To discover in an innovation arranged organization, business knowledge is utilized for key administration.*
- *To develop BI solution.*

2.2 METHODOLOGY

In this proposal we are collecting survey data through the managers working in different corporate sector. We are establishing the variables with their working parameters and on applying correlation, reliability and descriptive statistical system; we are going to confirm the suitable relationship with major three parameters. Furthermore make design of bi by alluding dissects and after that implementation of fundamental business insight arrangements. In view of information and data sources and contextual investigations the finish of the theory will be figured out.

2.2.1 Techniques

We are using samples of 50 managers of some companies and applying survey of 10 important questions. At long last, at the essential level of a company, we indicated a few normal insight prerequisites. All the more explicitly, we have an image of the knowledge necessities for settling on essential choices that will help upper hand. Key models are oftentimes utilized by chiefs, top administrators, and examiners to utilize or foster these insights. What does it connote, for example, assuming a contender embraces another innovation? The following stage

prior to settling on a decision is to decipher the information, which for the most part requires the utilization of insightful techniques. As they foster veritable knowledge, joining the two information and insight into models will without a doubt further develop examination and may even uncover a few beforehand obscure components. Thus, the nature of decisions and their going with activities has improved.

- **SWOT Analysis:**

SWOT (Strengths, Weaknesses, Opportunities, and Threats) is an abbreviation meaning qualities, shortcomings, valuable open doors, and dangers. This current examination's basic role is to match an association's inside capacities, like qualities and shortcomings, with outside conceivable outcomes, like open doors and dangers. This present strategy's solidarity and importance in this paper originate from the way that it tends to be utilized against contenders also. As such, when executed accurately, this methodology might support the improvement of upper hand. The SWOT model with the connection to upper hand is portrayed in Figure.

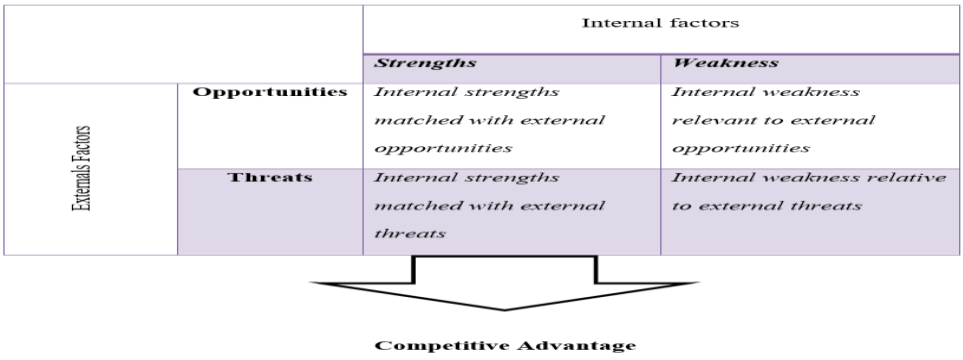


Figure 2. SWOT Model

- **BCG Growth/Share Portfolio Matrix:**

The Boston Consulting Group (BCG) advancement/share portfolio framework is a methodology created by the Boston Consulting Group to help firms working in multiproduct as well as multimarket undertakings in diagnosing corporate system. The model incorporates a system for assembling an optimal business portfolio just as nonexclusive strategies for further developing asset designation across that portfolio. Appeal, as assessed by market development, and serious situation, as estimated by relative piece of the pie, are utilized to rate items or key specialty units (SBUs) the last still up in the air by the specialty unit's portion of the overall

industry in contrast with one of its industry's biggest rivals. The graphical portrayal of the BCG network is displayed in Figure 2.2.

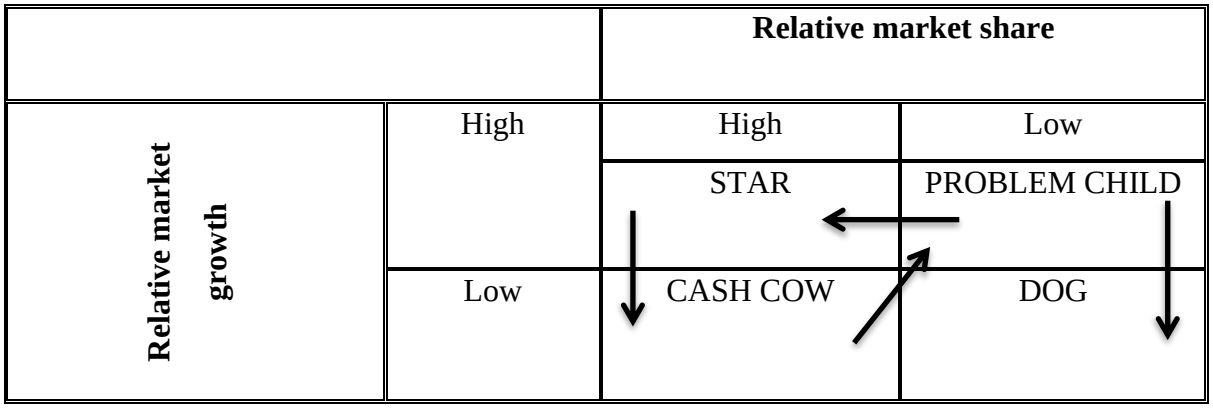


Figure 3. BCG Matrix

The treasure troves' low development rate and enormous portion of the overall industry bring about huge incomes. Speculations have as of now been made, and presently it's an ideal opportunity to receive the rewards. Stars and issue kids are both high-development specialty units that require enormous financial information sources. Stars require financial flood to proceed to develop and at last become treasure troves. Contingent upon the piece of the pie, issue youngsters will develop into stars or canines. On the off chance that piece of the pie increments because of weighty money related speculation, issue youngsters are probably going to advance into stars and, in the end, gold mines. Issue youngsters will transform into canines in the event that portion of the overall industry doesn't extend, and no further ventures will be required.

- **Research Instrument:** A structured questionnaire was utilized to collect data on the role, capabilities, and decision-making process of business intelligence systems, employee performance, and chosen demographic characteristics of respondents. Response categories ranged from strongly disagree (1) to strongly agree (5) on a five-point Likert scale. This was used to get respondents' feedback on the items in the questionnaire.
- **Descriptive Research:** Descriptive research is used to characterize the features of a population or phenomenon. Descriptive research is utilized in this study to investigate the function of business intelligence systems and their pervasiveness in ensuring the success of banking systems, as well as their impact on the quality of decision-making in banks.

3 REVIEW OF LITERATURE

This chapter has been attempted to conduct an extensive review of the existing research work related to business intelligences, business intelligence and decision making in banking sector, business intelligence and employee and bank performance. This particular task assists the researcher to identify the various research gaps from mainly the Indian context that makes to find specific problem statement and questions for the whole study. The review of literature plays a vital role in research, sets the scope and define specific problem. In this review, the analyst has isolated the exploration survey in view of the themes included any semblance of studies connected with business knowledge in financial area, concentrates on connected with business insight and decision making in financial area, and studies connected with business insight and representative and bank execution. Indeed this kind of plan will assist with understanding the research gaps and specific problems thoroughly

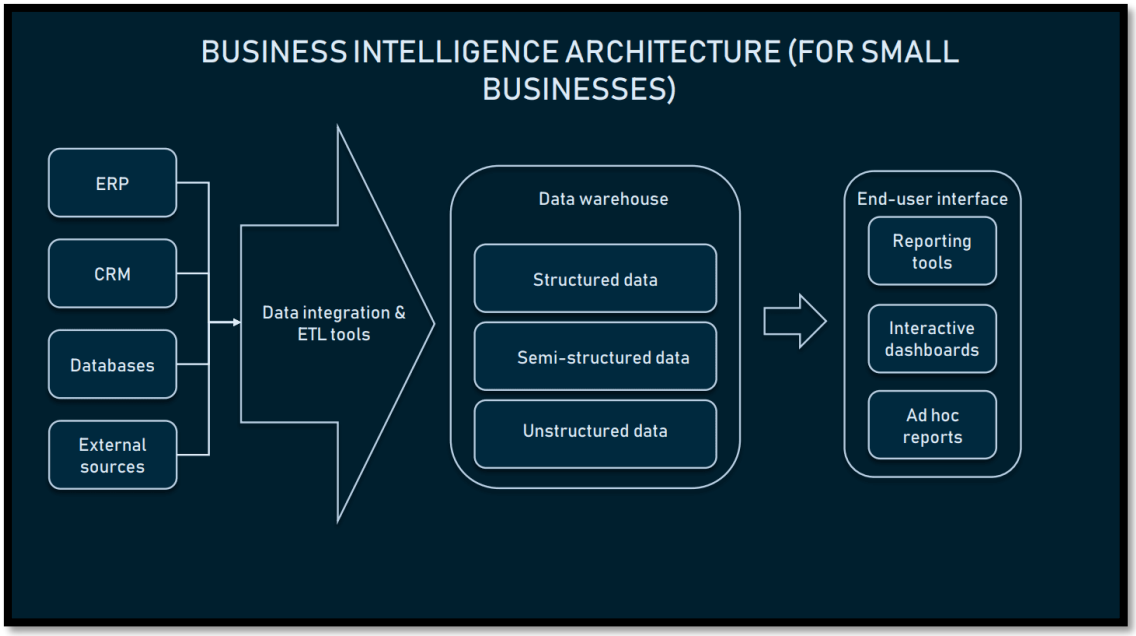


Figure 4. Business Intelligence Architecture

3.1 INVOLVEMENT OF BUSINESS INTELLIGENCE IN BANKING

Under this section, the author has analyzed the various research works that are related to business intelligence in banking sector. the reviews include the background of business intelligence, its foray in banking sector and bis evolution and these have been detailed as below.

Skyrius R, Et Al., (2013) aimed to define relations between simple and complex informing intended to satisfy different sets of needs and provided by different sets of support tools. The paper attempts to put together decision support and business intelligence technologies, based on common goals of sense-making and use of advanced analytical tools.

Decision Support and Business Intelligence. Test data from earlier research is used to direct possible further insights into this area. The authors suggest that the business decisions are adequately supported by the first tier of the support environment, thus possibly defining an efficient and economical set of support tools. What's more the issues of handling experience information and providing experience support should be investigated in more specific terms of what key information on decisions already made should be recorded to create brief yet essential context, and what is the reusability and relevance rate for different types of experience records.

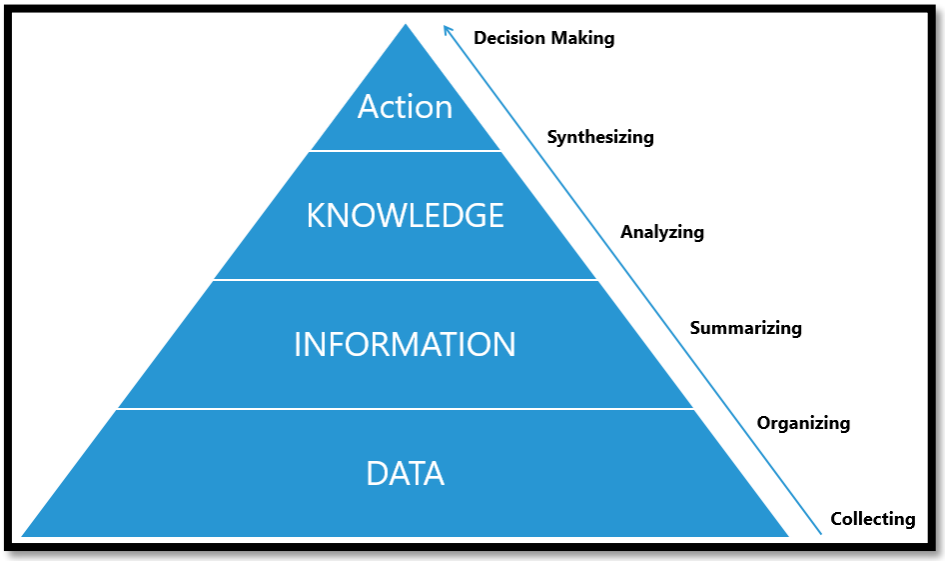


Figure 5. Decision Making Rising Plan

The technology acceptance model (tam) builds upon premises from expectancy models developed by vertinsky and his associates (1975). in spite of careful implementation efforts, robey (1979) theories that "a system that does not help people perform their jobs better is not likely to be received favorably." people tend to reject or accept new technology in the

workplace based on whether the technology or application improves their ability to perform at work. Two terms, "perceived" and "perceived" usefulness‖ and ―perceived ease of use, are used to define constructs and measures that davis (1989) suggests in his research. Developing research established from robey and vertinsky et al., davis formulated his empirical study to answer the question of why people tend to accept or reject a particular system or technology. davis' research defines two qualities, ―useful and ―ease, to establish a basis of measurement for user acceptance of technology.

The first construct established by davis is the perception for a person to believe that davis identifies a variable as the perceived usefulness of a system or application as a variable that will improve his or her work performance. The term ―useful‖ is defined as ―capable of being used advantageously. Davis uses the term to form a basis for his first construct, perceived usefulness. Seen usefulness is defined as ―the degree to which a person believes that using a system will enhance his or her job performance‖. The second construct, i perceived ease of use, was established by extending the term ease. As per davis (1989), ease is defined as ―freedom from difficulty or great effort (p. #). The definition of ease was determined through the research established by radner and rothschild (1975) in which ease was determined to be a finite resource that a person may exert effort for activities or tasks that he or she is responsible. A few scientists have found a positive association between perceived usefulness and ease of use, including venkatesh and davis (2000) and hart and porter (2004). Nevertheless, yi and hwang (2003) found no effect of perceived ease of use on perceived usefulness. From a motivational aspect, people are rewarded by promotions, raises, perks, and other reward bonuses. assuming there is a good system of rewards in place within an organization, then that organization exhibits a high perceived usefulness in which workers believe that they will be rewarded as a result of their system use and job performance. all the more importantly, if the organization shows ―positive reinforcement‖ of rewarding system use and enhanced job performance, then there exists a measurable level of perceived use. In a perceptual ease of use perspective, a person may believe that a particular application may help increase his or her ability to perform work; thus, there exists the possibility for a person to believe that the amount of effort to use the system may outweigh the actual benefits of actual system use. Davis depicted this tendency for a user to perceive the application's perceived ease of use is based on how difficult it is to use. The degree to which a person believes that using a particular system will be free of effort is defined as seen ease of use (davis et al., 1989, p.985).

Both perceived usefulness and ease determine if people accept or reject technology or applications; if an application is easy to use, then it will be used more often than the more challenging application. Seen use user acceptance is determined by two specific variables: perceived ease of use and perceived ease of use it is hypothesized that perceived usefulness and perceived ease of use are both determinants of system use. Both constructs—perceived usefulness and ease of use—are found to be connected to current usage and self-predicted future usage once more. The perceived ease of use is also found to be significantly connected to both current and future usage. Rather than predicting that perceived ease of use has a direct determination of usage, (davis et al., 1989, p.985) Recommends that perceived ease of use may be an antecedent to perceived usefulness as opposed to a direct factor of both current and future usage.

3.1.1 Impact on End Users

The BI & Analytics Survey 22 has the largest sample of any survey of business intelligence users available on the market. The BI & Analytics Survey has a rule that, as far as possible, only sub-samples containing 30 or more data points should be reported.

We apply increasingly stringent data cleansing rules, using a number of different tests. We remove all suspect data that purports to be from user sites.

Most surveys are conducted or sponsored by an organization based in, and focused on, one country. However, business intelligence and analytics is a worldwide market and we wanted, as far as possible, to capture a large international sample. This not only presents a more accurate global picture but also allows international variations to be analyzed.

The largest business intelligence and analytics markets are the United States, Germany, France and the United Kingdom, so The BI & Analytics Survey 22 was produced as a collaboration between organizations in each of these countries, and in partnership with publishers and vendors in these and other countries. It features not just the well known US products, but also products from other regions including Europe and Australia

Business Intelligence systems provide powerful analytic capabilities to end users within an organization. Business intelligence systems have been referred to as systems that combine data gathering, data storage, and knowledge management with analytic tools to present complex

internal and competitive information to planners and decision makers (negash, 2004). while the term ―business intelligence‖ is relatively new, the concepts of using computer-based systems to enhance visibility and support for decision making and management have been around for quite a long time (thomsen, 2003). Impromptu query functionality and the ability to organize and aggregate data from an underlying data warehouses make business intelligence systems an invaluable tool for managers. Basically, business intelligence applications serve as an important set of tools used for both strategic and operational purposes.

The informational goal of business intelligence systems is to serve as a bridge between the vast amount of data available into a consolidated subset of highly specific and useful information that is usable, actionable, and logical. Information that is transformed into information that is usable, actionable, and effectively applied is heavily dependent upon user roles throughout the organization. Business intelligence systems are used as input to strategic and tactical decisions at the highest levels of management. Business intelligence systems assist individuals with at lower managerial levels operational aspects of their jobs (negash, 2003). Assortment and transformation may come from a myriad of sources including spreadsheets, enterprise information systems, and text and other data sources, as well as enterprise resource planning systems and geographic information systems. Whatever the case may be may, the collection, transformation, and extraction of data within data warehouses may be problematic as data evolves from bits of information to actionable knowledge application.

Information warehouses are populated from many data marts, information stores, and other sources of information. Information obtained from such data sources may be inconsistent, inaccurate, and flawed, which complicates the process of converting data into usable information. Moreover, data may not be stored and structured in a matter conducive for transparent decision making. Information owners may be more protective of data that flows from their systems and databases. Associations often collect data that is not immediately available for use which requires manual and automated processes to make the data usable. One more issue with underlying business intelligence infrastructure may be that organizations unknowingly collect data as any company that uses information technology within their business is collecting some form of data. Experts may take too much time running ad hoc queries and generating reports for management that may never be utilized in a useful form. Innovation acceptance of business intelligence systems may be adversely affected if end users perceive the business intelligence system as being difficult to use or not providing advantageous benefits. In this paper, technology acceptance of business intelligence systems

builds upon the original research established by davis (1989) and other researchers in computer information science.

The field of bi has evolved over the years. The term ―business intelligence‖ was coined in the 1990s, and in the late 2000s, business analytics was considered a key component of bi (chen, chiang, and story, 2012). Business intelligence (bi) is defined by researchers in different contexts. elbashir, collier, and davern (2008) defined bi in the context of accounting and financial processing to aid in management decision making. watson, wixom, hoffer, anderson-lehman, and reynolds (2006) defined bifrom their case study as being real-time analysis to assist managers in making decisions. bi was defined by popovic et al. (2012) and wieder et al. (2012) as the data analytics, and technologies that can be used by management in business processes. In any case, these researchers agreed that bi is the technology that consolidates and provides analysis of business data to gain the upper hand and aid in decision-making. The development of organizational use of bi is a result of large amounts of data available which can be stored at low costs (chadhuri, dayal, and narasayya, 2011). As technology advances, the cost of storage in data warehouses has rapidly decreased. Organizations store more data and attempt to leverage this data for competitive advantage. Bi technology is used everywhere in manufacturing, retail, financial services, transportation, and telecommunications industries. The potential for using the vast amounts of data in the decision-making process is limitless.

3.1.2 Business Intelligence Architecture and its significance

The underlying BI architecture is a key element in the implementation of a successful business intelligence program that uses data analysis and reporting to help an organization track business performance, optimize business processes, identify new revenue opportunities, improve strategic planning and make more informed decisions overall. A business intelligence architecture articulates the technology standards and data management and analytics practices that support an organization's BI efforts, as well as the specific platforms and tools that will be deployed. It serves as a technology blueprint for collecting, organizing and managing BI data and then making the data available for analysis, data visualization and reporting. A strong BI architecture also incorporates policies to govern the use of the technology components.

Putting such a framework in place enables a BI team to work in a coordinated and disciplined way to build an enterprise BI program that meets its organization's data analytics needs. The

BI architecture also helps BI and data managers create an efficient process for handling and managing the data that's pulled into the environment.

A typical bi architecture consists of data from different sources with varying degrees of quality. The data must be cleaned and moved to data warehouses to ensure information content quality (chadhuri et al., 2011). As per chadhuri et al. (2011), this is accomplished through extract, transform, and load engines or complex event processing engines that support bi in near real time. Servers are used to manage the data warehouse, and engines designed for large volumes of data or big data are sometimes used to handle storage and retrieval (chadhuri et al., 2011; chen, chiang, and story, 2012). Now and again mid-tier servers are used to provide specific functions such as online analytical processing (olap), reporting or search engine functions. Front-end applications enable the user to perform bi tasks such as spreadsheets, dashboards, and searches. The attraction of bi is grounded in the tools that provide quick storage, retrieval, modeling, and analysis.

3.2 IMPACT OF BUSINESS INTELLIGENCE AND DECISIONMAKING

Under this section, the author has analyzed the various research works that are related to business intelligence and decision making system in banking sector. Additionally, the section includes detailed analysis of various concepts like decision quality, business intelligence system role, and business intelligence system impact on decision making process in banking sector.

The main focus for implementation of BI is is to take the data available, provide analysis, and generate content to aid in the management decision-making process. pranjic (2011) explained the necessity of information in order to make business decisions quickly. Scientists such as vinekar, teng, and chennamaneni (2009), popescu (2012), and pranjic have developed models and explanations of what bis should comprise and how it should operate in organizations. vinekar the role of business intelligence in the decision-making process was examined by et al. basing their model on herbert simons' (1960) stages of decision making. As per vinekar et al. insight is the information for the first stage of decision making. They described how organizations such as continental airlines, credit card companies, and first American corporation have customized solutions using bis to help management with decisions at a daily operational level and at the management level. Their proposed research model showed

knowledge as the moderating effect between information and intelligence, and intelligence and the decision. In addition, their conceptual model showed a link between the decision and business value. This model was developed as a result of a literature review of bi and knowledge management articles on research. Because information from the bis can be used in the decision-making process, vinekar et al conceptual model is consistent with this research and examined to determine organization benefits.

The link between the decisions made based on available data and business value does not always result in positive benefits for the organization. pranjic (2011) explained how bad data can lead to bad decisions. He maintained that high quality data is necessary, with employees having access to advanced information systems and training. In addition, managers must use sound judgment and not be driven by data only. Data content quality and information access quality are two constructs in this researched that address data quality and information accessibility.

3.2.1 Relational Business Intelligence and Decision Making

Many people turn to spreadsheets or similar tools to format data in a way that helps them do their jobs faster. There are several problems with turning to a manual system rather than a modern business intelligence tool to support decisions, including:

- Lack of data validation and safeguards
- Data is not available across the organization
- Manual entry is time consuming and error prone
- There is no certainty that the data is accurate

Lack of information forces many managers to make decisions based on guesswork or rules of thumb, and this lack of facts makes many managers uncomfortable, since speculative decisions usually don't result in optimum performance.

The inability to access actionable business intelligence to support decisions also leads to mediocre results. Companies without adequate business intelligence under-perform their competitors, as shown in the research report **"**Measuring the effects of business intelligence systems: The relationship between business process and organizational performance**"** by Mohamed Z. Elbashi, Philip A. Collier and Michael J. Davern.

In addition, people often exhibit negative personality traits such as low sense of control and pessimism when they are in the process of making a decision, according to research from Peter Gollwitzer of NYU and Shelly Taylor at UCLA. In addition, less decisive managers tend to exhibit these traits more often than managers who are more decisive.

People have varying degrees of decisiveness in their personalities, but providing business intelligence enables naturally less decisive managers to make fact-based decisions quickly, and improves the outcomes of their decisions.

Naturally decisive managers also benefit from having facts available quickly, and faster decisions help the entire organization to be more responsive and to perform better.

3.2.2 Business Intelligence Enables Every Decision Maker

Like any muscle that becomes stronger with use, decisiveness increases as the individual makes decisions. To improve an organization's responsiveness, it is important to provide tools, such as business intelligence, that enable confident decision making.

Modern business intelligence systems, coupled with effective data management techniques, provide timely, accurate and actionable information that aids both decisive and indecisive managers to improve the quality of their decisions. As the outcome of the decisions becomes more reliable and predictable, managers become more comfortable making decisions.

In effect, they have exercised their "decision muscle" and made it stronger because the business intelligence system provided the necessary information to give them confidence in the rightness of their decisions they are more capable of making accurate decisions inside the shrinking decision window, and that response improves overall organizational performance.

Some companies use software consulting experts or custom software to fine-tune their business intelligence to ensure the information is not only timely and accurate but presented in a way that makes it easy to understand. Whatever choice you make, it is clear that business intelligence is an important tool that every company needs to survive and thrive in today's fast-paced competitive environment.

In a quantitative survey study, martinsons and davison (2006) developed four constructs relating to the decision style of the manager. Supervisors with an analytic decision style used data and analytics in their decision making. a directive decision style used aggressive rules and

intuition. Innovative and long-term focus was indicative of a conceptual decision style. Strong communication and discussion were present in behavioral decision styles (martinsons and davison, 2006). Through surveys collected at business leaders' meetings, martinsons and davison examined the decision styles of 219 business leaders using the decision style inventory. discriminant validity of their measurements was obtained by individual item reliability measurements, with all items loading on their appropriate factors at greater than 0.60.the composite reliability measures were greater than 0.70, and cronbach's alpha was approximately 0.70. The average variance extracted exceeded 0.50, and no indicator had a higher correlation on the latent variable than the one it was designed to measure. Through statistical analysis using t tests, martinsons and Davison found that the decision style varied among nationalities. Americans scored significantly higher on analytic decision style than Japanese ($t = 2.89$, $p < .01$) and significantly higher than Chinese ($t = 2.58$, $p < .01$). This research indicated that American managers lean toward an analytic decision style as opposed to directive, conceptual, or behavioral decision styles. In light of martinsons and davison's research, analytical decision-making culture was a construct for this dissertation.

This is of importance in this research study since a bis would be more readily used by individuals with an analytic decision style, as the bis provides data and analysis to aid in decision making. martinsons and davison (2006) found that American business leaders have a more analytical approach to decision making than the collectivistic cultures of Japanese and chinese. This would indicate that the transference of findings in management decision making by using a bis and organizational benefits obtained from using the bis for decision making might not be representative in other cultures.

Ttwo other quantitative research studies that examined the factors that determined bis use were conducted by popovic, hackney, coelho, and jaklic (2012) and wieder, ossimitz, and chamoni (2012). Popovic et al. concentrated on the relationships of bis use in decision making. Wieder et al. analyzed factors affecting bis use, decision-making quality, and business performance. The two studies used surveys to measure bis usage and pls-sem for hypotheses testing.

wieder et al. (2012) used the constructs bi management quality, user satisfaction, and bi scope as antecedents to bis use. Through a cross-sectional research design, wieder et al. regulated a survey to senior it managers at 500 of the largest Australian companies based on capitalization. This resulted in 33 useable responses with construct loadings greater than 0.60, with most in the 0.80 to 0.90 range. Composite reliabilities also exceeded .70, and cronbach's alphas were

approximately .70 or greater for the constructs. In addition, average variances extracted ranged from .52 to .89, which was above the recommended .50 indicating convergent validity (wieder et al., 2012). Utilizing standardized beta coefficients, they found that the scope of the bis positively impacted the use of the bis ($\beta = .642$, $p < .01$), while user satisfaction negatively impacted bis use ($\beta = -.196$, $p < .05$). the scope of the bis was defined as the number of bi tools available for use by the manager and the number of business functions or processes in the organization that are supported by bi solutions (wieder et al., 2012).these quantitative measures of bi scope were based on concrete evidence obtained from the manager of the organization participating in the survey. wieder et al.'s findings were contrary to deloneandmclean's (2003) conceptual model relating increased user satisfaction to increased use and performance. Notwithstanding, delone and mclean developed their conceptual model based on the individual user instead of the organization, but later incorporated organizations into their 2003 model.

Popovic et al. (2012) also conducted data integration, analytical capabilities, bis maturity, information content quality, information access quality, and the mediating variable analytical decision making culture were used as constructs in their model in research on the use of information from bi in management decision making.popovicetal. Didn't include a construct relating to bi management quality, as was evidenced in wieder et al.'s (2012) research popovic et al.'s research was grounded inhuber's decision making theory, deloneandmclean's information systems success model, and eppler's framework on information quality. In light of these theories, popovic et al. fostered a survey measuring these constructs, and obtained 149 responses from chief information officers and senior managers in medium and large business in slovenia.

Davenport (2010) interviewed 32 managers to investigate the relationship between information and decision-making and discovered that there are three levels of information-decision-making relationships. Loosely coupled information and decisions, structured human decision environments, and automated decisions are the different levels. Information is made available by associations. to decision-makers through bi systems and tools for analysis when using loosely coupled information and decisions (davenport, 2010). With loosely coupled information, the use of the information is voluntary. As per davenport most organizations approached bi systems as decision enhancers through a loosely coupled information level. a stronger linkage from the bis information to decision is through structured human decisions. atthis level, managers still make the decision, but targeted process and contexts through specific information are provided by the bis (davenport, 2010). Mechanized decisions are made entirely

by the bis. This level provided the highest link from the bis to the decision (davenport, 2010). This qualitative research provided established links at different levels from use of information from bis to the decision-making process. this link from the bis to use of information from the bis is also present in this research.

One more research study examined the process of management decision making. citroen (2011) interviewed 16 executives who were a member of a board or who held the position of a director in 12 chemical and food companies in the Netherlands and Germany. Through interviews with executives, citroen examined 32 strategic decisions made by these executives and determined that the rational approach of executives involved stages. These stages were preparation, analyses, specification of alternatives, limiting alternatives and options, assessment, and final decision and implementation. citroen determined that information from information technology processes or bi systems were useful in the preparation, analysis, and review phases of the rational approach to decision making. In addition, the quality of information in terms of integrity and completeness and expediency of the information were important. citroen maintained that executives felt more confident when information from the bis or its system supported the decision. Nonetheless, prior research by martinsons and dav.

3.3 ACCOUNTABILITY OF BUSINESS INTELLIGENCE IN EMPLOYEE PERFORMANCE

Under This Section, The author has reviewed a number of research papers on business intelligence, as well as bank and employee performance. The Review Includes The Studies Related To Influence Of Business Intelligence System On Bank Performance And Employee Performance. The Same Have Been Detailed As Below.

Taneja R M (2014) Opined that the business intelligence can be exploited as a source and a strong support system, for any organization, to develop ideas for growth in today's competitive market scenario it is a tool that salvages, assembles, accumulates and processes the data to provide constructive information to the organization that helps in better decision making. The author also asserted that the business intelligence system is a source of information to an organization that facilitate generation and development of ideas conducive to growth in today's competitive market scenario. The information can be used to strategize and plan in order to achieve competitive advantage. In her attempt the author explored the avenues that how the business intelligence can provide useful information to banking industry, by exploring the

nature of consumer transactions and dealings, and can help a banking industry to nurture a strong and long term relationship with its consumer and bring consumer delight.

Mishra R And Saini A K (2015) Focused interviews, press releases, bank website reviews, and case study analysis were utilized to investigate the usage of business intelligence and analytics in Indian banks. The authors discovered many tools and technologies being used in banks, as well as various areas of BI application. It also identified areas for improvement, as well as issues and challenges that Indian banks face in their BI and analytics implementation plans. They hoped that their research will serve as a knowledge base for BI and analytics in Indian banks, allowing managers, decision-makers, and researchers to make more informed decisions.

BI The main focus is on three core areas: ensuring competitive advantage, improving operational efficiency, and increasing profitability, all of which are achieved through data collaboration and analysis systems, which serve as an intermediary layer between business processes and data collection. To manipulate organizational data and provide information and insight to its stakeholders, BI applications use a variety of technologies such as data mining, data warehousing, online analytical processing (OLAP), periodic business reports, business performance management, and so on. Chaudhuri and his associates (2011)

Khan A (2013) In His Empirical The Status Of Business Intelligence And Its Applicability At Branch Level Due To Implementation Of Business Intelligence (BI) Solutions Is Investigated In A Study Of 25 Selected Indian Banks In The State Of Rajasthan. The study's main finding is that public sector banks are lagging behind private sector banks in terms of using business intelligence solutions. The dashboard and scorecard tools are underutilized by the branch manager. Only standard and ad-hoc reporting tools are available to them. Fraud Prevention and Detection Analysis and Key Performance Indicators at the Branch Level (KPI) Analysis Are Highest Application Being Utilized by the Respondent’s Bank. Execution Of Regulatory Compliances Is Highest Benefit Perceived By The Respondents. New Banks Are In Better Position To Implement Business Intelligence Solutions Compare To Old Banks.

Morris Henry Et Al., (2002) conducted a Study on the Financial Impact of Business Analytics Based on 43 Case Studies of Organizations That Successfully Implement and conduct in-person interviews to use analytic applications. The project's goal was to investigate the financial impact of analytic applications on core business processes that contribute to an

organization's success, as well as their return on investment (ROI).They Found That Businesses That Make An Investment In Analytics Can Achieve A Significant And Rapid Return Because Of Increased Efficiencies And Expanded Opportunity.

3.3.1 Business Intelligence as a Part of Organization

Business Intelligence systems are an important part of organizations as they can be used to determine their performances. From the definition of business intelligence, it is clear they enhance decision-making (sabanovic&søilen, 2012: popovičet al., 2012). According to popovičet al., (2012) business intelligence provides quality information to organizations which are essential in the process of decision making. This is because it equips the knowledge workers with an opportunity to timely access of information, analyze it effectively and intuitively present the right information. Such an opportunity enables an organization to make the right decision and take the right action. Therefore, business intelligence should be understood as the ability of an entity to think, plan, predict and solve the problem in an innovative manner (popovičet al., 2012). Business intelligence emphasizes abstract thinking and innovative ways of solving problems in a timely manner because appropriate actions are taken so as to advance business goals and overcome any looming business disruption event. This is only possible when the right business systems are implemented. Apart from helping a business organization in making proper decisions regarding their functions, business intelligence has other benefits. sabanovic, &søilen(2012) argue that business intelligence systems (bis) do not only help in making better and more efficient decisions but also impact the entire organization to improve its return on investment, gain new customers and suppliers and also recruit the best employees and enhance their satisfaction. Business intelligence systems bring greater visibility into business by allowing the leaders to have an entire understanding of the company and the environment that it operates in (sabanovic, &søilen, 2012). This is possible because bis lead to the gathering of the information that is used in strategic planning. The strategic plans of an organization touch on different areas that give an organization a competitive advantage.

Williams steve and williams nancy (2003) suggest that the business value of bi its value is in how data is used in management processes that affect operational processes that drive revenue or cut costs, and/or how it is used inside those operational processes. the quest for delivering business value with bi can be viewed as determining how an organization can use bi to improve management processes such as planning, controlling, measuring, and monitoring and/or

changing so that management can increase revenues, reduce costs, or both. and furthermore to improve operational processes such as fraud detection, sales campaign execution, customer order processing, purchasing, and/or accounts payable processing so that the business can increase revenues, reduce costs or both.

Concurring Eckerson Wayne W (2006), because the majority of the benefits of business intelligence are intangible in nature, organisations must justify their investment in terms of cost, according to a survey of 510 respondents conducted by The Data Warehousing Institute In 2003.

Creators Kalakota, R. Also Robinson, M (2001) suggested that a business intelligence system based on a data warehouse is about empowering an organization's best people to gain insight through exploitation of the information that the company has spent millions of dollars and years developing. The Data Warehouse, when combined with Business Intelligence, has the potential to enable users to produce data on a continuous basis. Enormous, Sustainable, Measurable Benefits That Lead To Competitive Advantage And Fulfill The Promise Of IT.

According to IBA-Finsight (2007) The Special Report Suggests That Operational Business Intelligence In Banking Delivers Information And Insights To Managers Involved In Operational And Transactional Processes. While serving a customer at a counter, an executive can cross-sell other products using data and analytics from the operational business intelligence system, which is based on the customer's previous transactions. The time it takes for a line of business user or application to respond to a business issue or requirement is reduced by operational business intelligence. The time it takes for data to arrive warehouse should be as small as possible to get operational analytics. icici bank had implemented the sas solutions to address this problem.

Nadeem Muhammad And Jaffri Syed Ata Hussain (2004) Studied Credit Information Bureau (CIB), State Bank Of Pakistan (SBP), Which Maintain The Information Related To Borrowing. In the SBP, the CIB serves as central repositories for credit worthiness reports. The bank required quick, accurate, and dynamic analysis on both an individual and group basis. Using Oracle 9i Database, MS SQL Server (Data Staging), and C+ Programming, they developed and customised the business intelligence solution Olbaonline Business Analyst. Language. The software provides credit worthiness analytics based data with graphical visualization.

Bach MirjanaPejic, Ivan Strugar, And Bozidorjakovic (2007) Studied to explore usage of business intelligence tools in croatian banks. Creator had examined the possible business tools and their applications in general, and then we looked at how they could be used in banks. A study was conducted on the use of business intelligence tools in croatian banks. Only 46% of croatian banks use both main business intelligence tools, according to the survey's findings (Data mining and data warehousing). Banks which use business intelligence tools differ from the banks which do not have such a system. They differ in the following characteristics: size of total assets, participation of their own assets in the croatian banking sector, size of off-balance items, size of income and capital stock and rate of capital adequacy. Banks which use business intelligence tools are larger and more successful. Huge and successful banks invest more in information technology, especially business intelligence in the purpose of more efficient business reporting. By using business intelligence tools, these banks will use their organizational knowledge even better, and consequently they will become even more successful. This will make possible to invest even more into advanced information technology.

Owusu a (2017) aimed to empirically evaluate the impacts of adopting bi systems on organizational performance of banks. a conceptual model was developed using the balanced scorecard. Information was collected through hand-administered survey questionnaires from the universal banks in Ghana where 130 samples from executives were analyzed through partial least squares structural equation modeling (PLS-SEM). The Results Indicate That BI Systems Have a significant positive impact on the banks' learning and growth, internal processes, and customer performance. In any case, the findings demonstrated that the adoption of BI systems does not directly lead to a bank's financialperformance, but rather indirectly through the indirect effects of learning and growth, internal processes, and customer performance, confirming the core premise of the Balanced Scorecard. Vendors can use the findings to promote their BI solutions, which is a major practical implication of the study Products.

The Belief The idea that information technology (IT)/information systems (IS) have a positive impact on organisational performance (Osei-Bryson and Ko, 2004) has been a long-standing debate in the IS literature and has gotten a lot of attention from academics and practitiners (Davern and Kauffman, 2000; Irani and Love, 2000; Remenyi, Money, and Sherwood-Smith, 2000). In fact, despite some encouraging evidence from some IT payoffs, there have been several debates about the performance effects of IT investments (Brynjolfsson, 1993; Brynjolfsson and Hitt, 1993, 1996; Hitt and Brynjolfsson, 1996). While researchers

(Brynjolfsson and Hitt, 1996; Kohli and Devaraj, 2003; Stratopoulos and Dehning, 2003; Stratopoulos and Dehning, 2003; Stratopoulos and Dehning, 2003; Stratopoulos and Dehning, 2003; Stratopoulos and2000) got a Positive Response From IT Impact On Organizational Performance, Other.

3.4 BACKGROUND OF THE STUDY

Alexander Styhre Et Al (2002)49 discussed experience of stress in a pharmaceutical company. it suggestions that stress should be regarded as a physical phenomenon that incorporates human emotional qualities.as an outcome of a set of ambiguities, stress is produced in a social setting, but it has immediate bodily effects on employees.

Slaskiand Cartwright (2002)50 investigated ei, stress and health in a group of managers. these authors measured stress by asking respondents to indicate on a single scale the extent to which they perceived their lives to be stressful at the time. They reported that there were significant relationships between ei, stress and health and that ei may play a role in moderating the stress process and increasing an individual's resilience to stress.

Burke (2002)51 Investigated the Relationship between Occupational Stress and Health In A Sample Of Over 2,500 Women. Job satisfaction, psychosomatic symptoms, days of illness, and a measure of work-family conflict were also included. Burke Reported That women with more work stressors had higher levels of psychosomatic symptoms and more days of illness in the previous year, and that women with more work-family conflict also had higher levels of psychosomatic symptoms and more days of illness Indicated Higher Levels Of Psychosomatic Symptoms.

Goldenberg Al (2003)52 proposes the differential impact of each event on self-esteem for men and women leads to gender-differentiated patterns of jealousy in response to sexual and emotional infidelity discoveries demonstrated that men derive relatively more self-esteem from their sex lives, whereas women's self-esteem is more contingent on romantic commitment.

Mattila Et Al (2003)53 examined whether men and women respond differently to positive and negative affective displays in brief, ordinary customer service interactions women in this study were predictable due to north american gender stereotypes and process focus less satisfied than men with negative emotional displays during an otherwise smooth service exchange.

Boyle And Joshua Healy (2003)54 applied the neo-durkheimian conceptual framework of mysterium and onus to demonstrate how spiritual work can be used to achieve emotional balance in emotionally charged workplaces. the paramedics' constant emotional oscillations with and emergency services organizations demonstrate how spiritual work is achieved at the paramedic-patient interaction level emotional equilibrium with the self, and degrees of connectedness to the organization itself.

Eugene Tootle (2003)55 Addressed The importance of a basic understanding of neuroscience in marital, couple, and family therapy practice and training these looked at the biological and physiological processes that underpin emotions, memory, and neurochemistry, with a focus on how they affect behavior. family therapists and other mental health professionals can only be effective if they have a thorough understanding of the social and biological bases of behavior. professionals be adequately prepared to assist in finding solutions to the difficult problems encountered in family therapy.

MccoyAnd Brenda Major (2003)56 Tested the prediction that group identification moderated theimpact of perceived discrimination emotions of self-evaluation catches up on reading prejudice against the in group is a threat to the self, as demonstrated by highly group identified individuals. in this vein, the self-protective strategy of attributing negative feedback is an interesting read. to discrimination may be primarily effective for individuals who do not consider the group a central aspect of self.

Richards (2003)57 According to his analysis, during tense interactions with others suppression should (i) decrease memory for what was said and (ii) increase memory for emotions, whereas reappraisal should (i) increase memory for what was said. They used experimental manipulation of reappraisal and suppression in dating couples while they discussed a relationship conflict to test these predictions. Their findings suggest that it is critical to maintain the trustworthiness of the public. Cognitive functioning during emotionally trying social interactions; some forms of emotion regulation may have more to recommend them than others.

Austin (2003)58 Assessed Emotional Intelligence (EI), Personality, Alexithymia, Life Satisfaction, Social Support and Health Related Measures In Canadian (N=500) And Scottish (N=204) Groups. Alexithymia and alcohol consumption were found to be negatively associated with EI, while life satisfaction and social network size and quality were positively associated. Regression Analyses were used to clarify the multivariate associations among the

measures used. The Results Show That EI Is More Strongly Associated Than Personality With Social Network Size, But Social Network Quality, Alcohol Consumption And Health Status Are More Strongly Related To Personality.

MongrainAndVettese (2003)59 Examined the role of conflict over emotional expression for subjective and interpersonal functioning. The awq (ambivalence over the expression of emotion questionnaire) was given to female students who were videotaped while completing a conflict-resolution and feedback task with their boyfriends. The data suggest that conflict over emotional expression entails less congruent communication, less positivity in close relationship, and a subordinate stance for the ambivalent individual.

Palmer Et Al (2003)60 Discussed the Relationship between Emotional Intelligence, Personality and Effective Leadership in three separate samples the relationship between the workplace sueit, a workplace measure of emotionality, and the three personality traits of neuroticism, extraversion, and openness was investigated. Little correlations were found between the sufit and n.e. furthermore o. proposing that the sueit is measuring something distinct from normal personality.

Barchanrd (200) Examined The Ability Of Emotional Intelligence To Predict Academic Achievement. Emotional intelligence's predictive validity was compared to the predictive validity of traditional cognitive abilities and the Big Five Dimensions of Personality in this circumstance, Only Some Measures of Emotional Intelligence Predicated Academic Success, And None of These Measures Showed Incremental Predictive Validity for Academic Success.

Section And Mayer (2003)61 looked into the convergent, discriminant, and incremental validity of one ability test of emotional intelligence (EI), the Mayer-Salovey-Caruso-Emotional Intelligence Test (MSCEIT), and two self-report measures of EI, the Emotional Quotient Inventory (EO-I) and the Self-Report EI Test (SREIT). The MSCEIT Showed Minimal Relations To The EQ-I And SREIT), Whereas The Latter Two Measures Were Moderately Interrelated.

Sarigiani Et Al (2003)62 Everyday experiences and parental depresses mood were examined in 201 primarily caucasian family groups. Families (n=36) with at least one parent reporting recurrent depressed mood were compared to a control group (n=165). recurrent parental depression in children and adolescents group reported higher levels of depressed mood and greater family conflict.

GulatiandBhal (2004)63 explored the socially valid hr systems of software professionals in india. he investigated the extent to which personality influences employees' perceptions of workplace justice. Carious software organizations in india conducted a survey of 310 employees. Locus of control and emotional quotient were found to be strong predicts of procedural justice, and equity orientation and emotional quotient were the best predictors for interactional justice.

Douglas Et Al (2004)64 showed the moderating effect of emotional intelligence on the relationship between the personality and individual performance dimensions of conscientiousness they posited emotional intelligence as a moderator in this relationship in their establishment of emotional intelligence as a moderator in this relationship a social effectiveness construct such that emotional intelligence is a set of skills used to evaluate the feelings and perceptions of others and use this information to influence others.

Ceasar Douglas Et Al (2000)65 Investigated Individuals with high Emotional Intelligence have a stronger link between conscientiousness and performance. The hypothesis was supported by the results of hierarchical moderated regression analyses By Demonstrating That the relationship between conscientiousness and work performance is positive for Individuals High (Versus Low) In Emotional Intelligence.

Section Et Al (2004) assessed the discriminate, criterion and incremental validity of an ability measure of emotional intelligence (ei). The ei score of women was significantly higher than that of men. Men’s ei, on the other hand, was more predictive of the life space criteria than women's. In males, a lower ei was linked to an inability to perceive emotions and use emotion to facilitate thought. With negative outcomes, including illegal drug and alcohol use, deviant behavior, and poor relations with friends.

sevalfer (2004)66 evaluated the emotional intelligence (eq) in-service program on based on the experiences of 20 secondary school teachers who participated in a programmer at a private turkish school. The findings showed that the eq program had implications forlearningand teaching activities in the classroom

stephen fineman (2004)67 examined critically the recent growth of emotion measurement in organizational behavior. The problematic and restrictive epistemological and phenomenological consequences of psychometrically boxing 'emotion, it is argued the ability to understand people at their core is a good example of these issues, where experts ascribe

positive outcomes. Value to people with high emotional intelligence quotients eqs are regarded as suitable cases for training.

Shobaarun et al (2004)68 i argued that icts, as a new technology, are socially deterministic, with a variety of outcomes.

3.5 BUSINESS INTELLIGENCE SOLUTION

To be useful for business units—or anybody else with a low level of technical knowledge—BI must be as user-friendly and accessible as feasible for all levels of employees throughout an organisation.

- **A single business intelligence platform**

Consider a solution that provides a single, unified application platform. Many businesses have an existing business intelligence ecosystem that includes various solutions for reporting, discovery, analysis, and other tasks. Working with all of these solutions can be costly and time-consuming, and it necessitates a high level of technical understanding. Compatibility concerns can arise when multiple solutions are used.

- **Business Intelligence as a Service (BIaaS)**

Users across your organisation should be able to access a BI solution easily, whether they are in the office, working remotely, or on the road. A cloud solution has the greatest accessibility and availability potential. It may be accessed whenever and wherever it is needed, and it can be used alone or with coworkers.

- **Connected Business Intelligence**

The majority of BI solutions can link to one or more data sources. Consider a solution that comes with pre-configured connections. It's simple to load and integrate data from various sources using this type of solution. Prebuilt connections save time and decrease the complexity of the solution, allowing your IT staff to focus on other duties.

- **Predictive analytics**

You want a smart BI solution with incorporated machine learning and augmented analytics to make BI simple. This type of software can assist users in obtaining, analysing, interpreting, and communicating data, as well as simplifying and automating operations.

3.6 RESEARCH GAPS

In this section the research gaps have been drawn as per study objectives so that the understanding is made easier. In the above section a detailed and constructive analysis of previous studies have been done. as per that the below mentioned points provide more detailed information about the direction for the current study and where it also zeroed down on the broad concepts to the specific area of study in the problem statement followed by the research gaps.

3.6.1 Adoption of Technology in Banking

The most of the literature survey that have been covered in this study are pertaining to adoption of technology in banking sector like business intelligence, artificial intelligence, machine learning, and founding to be happened in developed economies and also they all found to be doing well across the banking space. Nonetheless, there is no solid research that has been taken place in Indian context, proving a way and scope for a detailed study of business intelligence system and its role in making banking operations successful. There are a host of factors at bank level that one should consider while determining the influence of business intelligence system on bank employee performance and bank performance. It is evident that the present studies have not considered exhaustive factors to examine the performance persistent on both employees and bank in particular. notwithstanding, in the current study, nine different factors have been considered for analyzing bis influence on both bank performance and bank employees 'execution.

3.6.2 Research Area Covering

A good number of banks like private, public and foreign banks, for their adoption of technology in making quality decisions make study more relevant and applicable.

3.6.3 Sample Size

The sample size of respondents considered in the previous studies is not such exhaustive. The present study covers surveying good number of respondents and bases the findings and conclusions on reliable data. Sample size will be 50 managers**.**

3.6.4 Performance Gap

The previous studies lack the holistic and detailed analysis of overall performance of banking companies keeping technology in view. They're supposed to be exhaustive studies covering overall performance like business intelligence system, quality of decisions, bank performance and bank employee performance. In spite of good number of studies, there is still huge scope apart from those gaps mentioned above, due to changes in banking regulations like ifrs, basel etc., business ecosystem, political system and other external factors.

3.6.5 Significance

A significant number of the researches do lack in usage of sophisticated tools and tests in estimating the relationship between the business intelligence and its role in creating successful banking operations, business intelligence system and quality of decision making, business intelligence system and bank performance and business intelligence system and bank employee. There is emergence of variety new models, testing them in different scenario creates a gap.

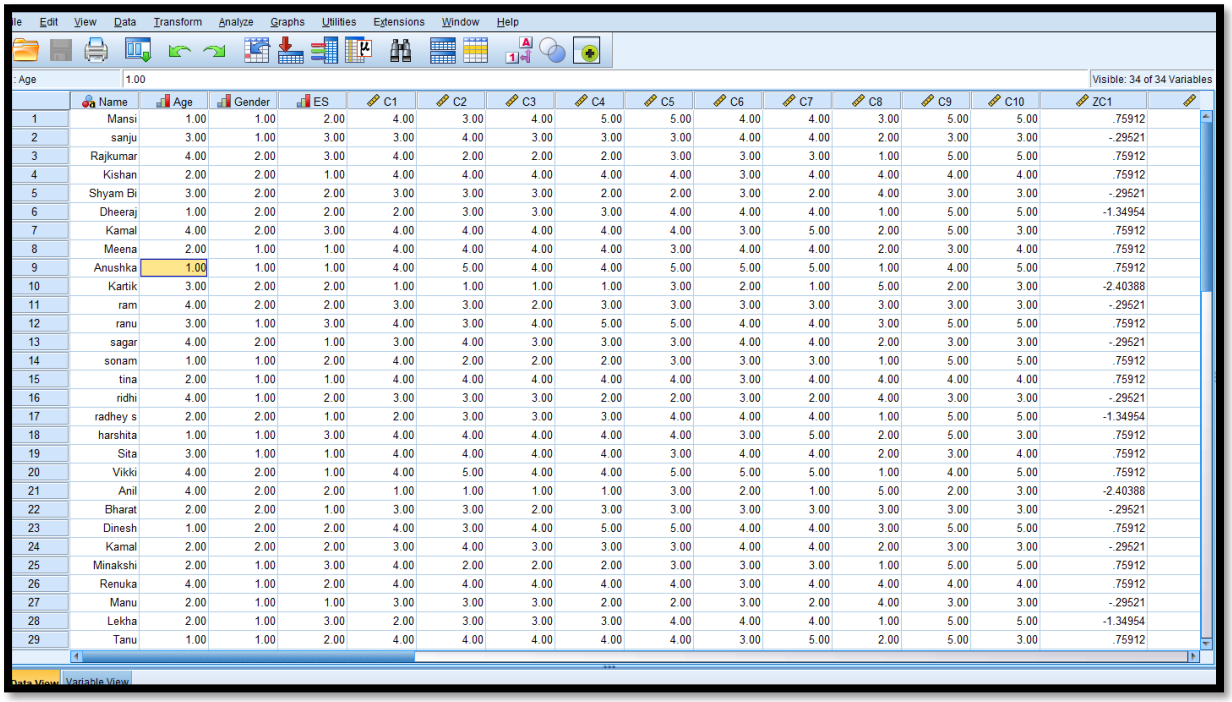
4 Practical part and Data analysis

The Study Design: Questionnaire has been used for data collection**.**

The Sample Design: The Study of the 50 managers.

Population: Population will be the managers**.**

Sampling Element: The customer and managers are the sampling elements**.**



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: Age 1.00 Visible: 34 of 34 Variables

	Name	Age	Gender	ES	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	ZC1
1	Mansi	1.00	1.00	2.00	4.00	3.00	4.00	5.00	5.00	4.00	4.00	3.00	5.00	5.00	.75912
2	sanju	3.00	1.00	3.00	3.00	4.00	3.00	3.00	3.00	4.00	4.00	2.00	3.00	3.00	-.29521
3	Rajkumar	4.00	2.00	3.00	4.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00	5.00	5.00	.75912
4	Kishan	2.00	2.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	.75912
5	Shyam Bi	3.00	2.00	2.00	3.00	3.00	3.00	2.00	2.00	3.00	2.00	4.00	3.00	3.00	-.29521
6	Dheeraj	1.00	2.00	2.00	2.00	3.00	3.00	3.00	4.00	4.00	4.00	1.00	5.00	5.00	-1.34954
7	Kamal	4.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	5.00	2.00	5.00	3.00	.75912
8	Meena	2.00	1.00	1.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	2.00	3.00	4.00	.75912
9	Anushka	1.00	1.00	1.00	4.00	5.00	4.00	4.00	5.00	5.00	5.00	1.00	4.00	5.00	.75912
10	Kartik	3.00	2.00	2.00	1.00	1.00	1.00	1.00	3.00	2.00	1.00	5.00	2.00	3.00	-2.40388
11	ram	4.00	2.00	2.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-.29521
12	ranu	3.00	1.00	3.00	4.00	3.00	4.00	5.00	5.00	4.00	4.00	3.00	5.00	5.00	.75912
13	sagar	4.00	2.00	1.00	3.00	4.00	3.00	3.00	3.00	4.00	4.00	2.00	3.00	3.00	-.29521
14	sonam	1.00	1.00	2.00	4.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00	5.00	5.00	.75912
15	tina	2.00	1.00	1.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	.75912
16	ridhi	4.00	1.00	2.00	3.00	3.00	3.00	2.00	2.00	3.00	2.00	4.00	3.00	3.00	-.29521
17	radhey s	2.00	2.00	1.00	2.00	3.00	3.00	3.00	4.00	4.00	4.00	1.00	5.00	5.00	-1.34954
18	harshita	1.00	1.00	3.00	4.00	4.00	4.00	4.00	4.00	3.00	5.00	2.00	5.00	3.00	.75912
19	Sita	3.00	1.00	1.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	2.00	3.00	4.00	.75912
20	Vikki	4.00	2.00	1.00	4.00	5.00	4.00	4.00	5.00	5.00	5.00	1.00	4.00	5.00	.75912
21	Anil	4.00	2.00	2.00	1.00	1.00	1.00	1.00	3.00	2.00	1.00	5.00	2.00	3.00	-2.40388
22	Bharat	2.00	2.00	1.00	3.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-.29521
23	Dinesh	1.00	2.00	2.00	4.00	3.00	4.00	5.00	5.00	4.00	4.00	3.00	5.00	5.00	.75912
24	Kamal	2.00	2.00	2.00	3.00	4.00	3.00	3.00	3.00	4.00	4.00	2.00	3.00	3.00	-.29521
25	Minakshi	2.00	1.00	3.00	4.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00	5.00	5.00	.75912
26	Renuka	4.00	1.00	2.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	.75912
27	Manu	2.00	1.00	1.00	3.00	3.00	3.00	2.00	2.00	3.00	2.00	4.00	3.00	3.00	-.29521
28	Lekha	2.00	1.00	3.00	2.00	3.00	3.00	3.00	4.00	4.00	4.00	1.00	5.00	5.00	-1.34954
29	Tanu	1.00	1.00	2.00	4.00	4.00	4.00	4.00	4.00	3.00	5.00	2.00	5.00	3.00	.75912

Data View Variable View

Figure 6. Applied data

Sampling Technique: Non-Probability judgmental sampling will be used for current study. Non-Probability critical inspecting procedure in which the model people are picked unmistakably founded on the expert's data and judgment. As the expert's data is instrumental in making a model in this investigating technique, there are chances that the results procured will be significantly exact with a base space for error.

4.1 Tools for Data Analysis and Collection:

The standardized Questionnaire will be used for data collection from resources and research papers.

Reliability Test has been applied to check the Reliability of Data.

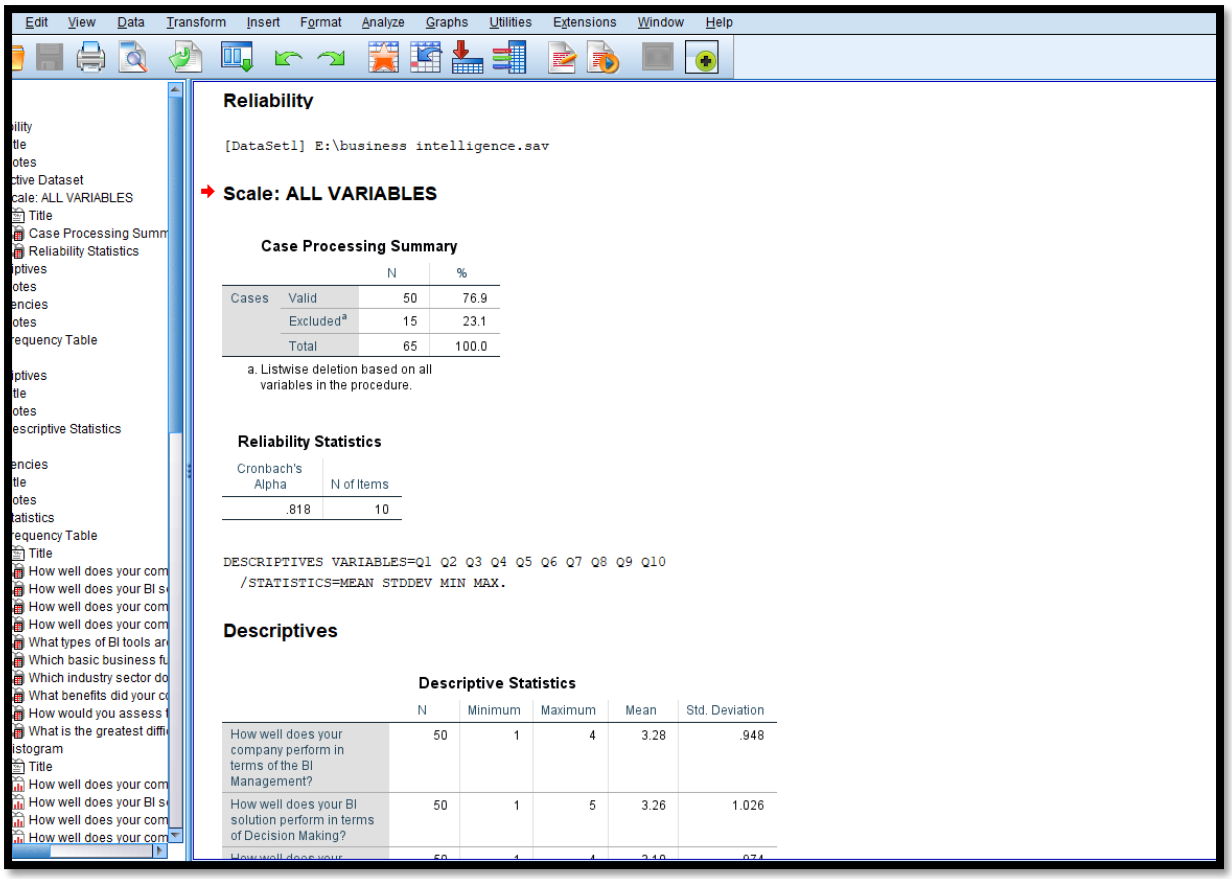

Figure 7. Reliability of Questionnaire and Descriptive statistics

Descriptive Statistics has been used to find out the central tendency.

Correlation has been applied to really take a look at the effect of Business Intelligence on Quality of Managerial choice.

4.2 Hypothesis

H0: Business intelligence is significantly related to data quality.

H1: Business intelligence is significantly related to quality of managerial decision making.

H2: Business intelligence is significantly related to information quality.

4.3 Reliability Test:

Dependability still up in the air by getting the degree of exact assortment in a scale, which should be conceivable by concluding the connection between the scores procured from different associations of the scale. Thusly, expecting the relationship in immovable quality examination is high; the scale yields unsurprising results and is likewise strong.

Reliability statistics

Cronbach's alpha	**No. of items**
0.818	10

Table 1. Reliability table

It is consider that the unwavering quality worth more than 0.7 is great and it very well may be seen that practically the dependability techniques applied here the unwavering quality worth of the Questionnaire is 0.818 which is higher than 0.7 so every one of the things of the Questionnaire are thought of as solid.

4.4 Descriptive statistics

A clear measurement is a synopsis estimation that quantitatively depicts or summarizes features from a variety of information, while expressive experiences is the technique engaged with using and separating those bits of knowledge.

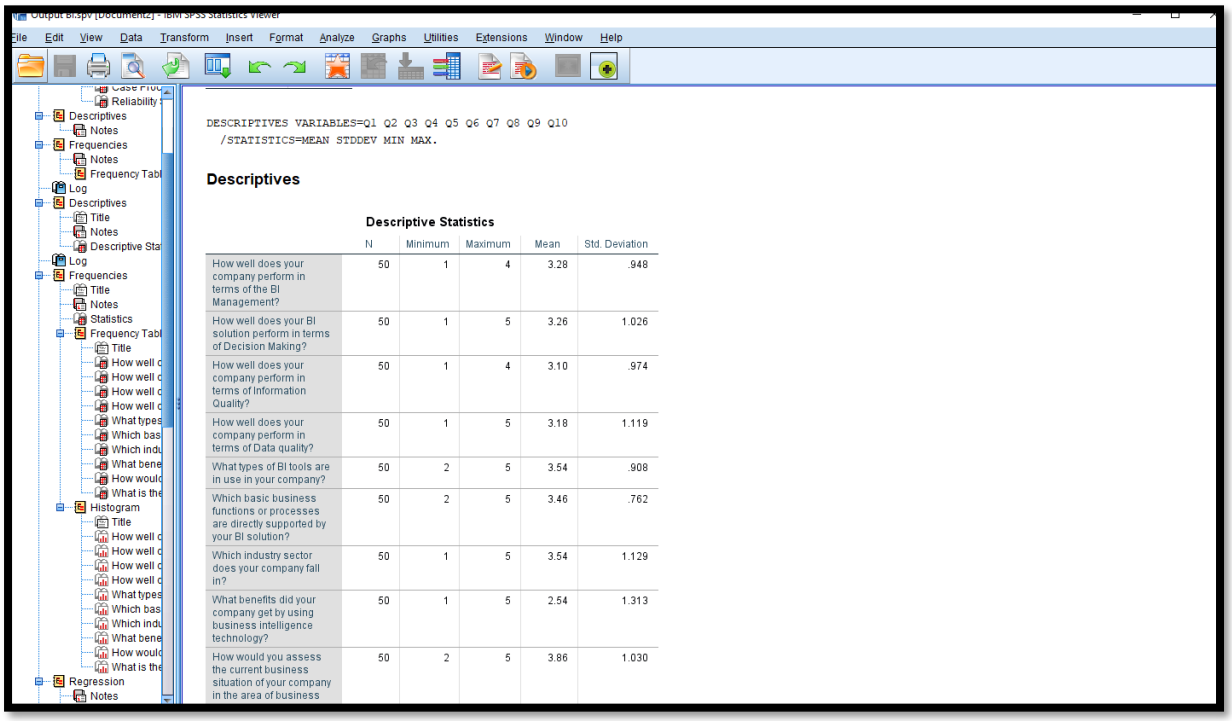

Figure 8. Summarization of Data

	N	Minimum	Maximum	Mean	Std. Deviation
How well does your company perform in terms of the BI Management?	50	1	4	3.28	.948
How well does your BI solution perform in terms of Decision Making?	50	1	5	3.26	1.026
How well does your company perform in terms of Information Quality?	50	1	4	3.10	.974
How well does your company perform in terms of Data quality?	50	1	5	3.18	1.119
What types of BI tools are in use in your company?	50	2	5	3.54	.908
Which basic business functions or processes are directly supported by your BI solution?	50	2	5	3.46	.762
Which industry sector does your company fall in?	50	1	5	3.54	1.129
What benefits did your company get by using business intelligence technology?	50	1	5	2.54	1.313
How would you assess the current business situation of your company in the area of business intelligence?	50	2	5	3.86	1.030
What is the greatest difficulty for your company's business in the area of business intelligence?	50	3	5	3.94	.913
Valid N (listwise)	50				

Table 2. Descriptive Statistics

As per the above table no.2 we observed that the average mean is approximate 4, so we can say that very extently there is the concept of the Business Intelligence is prevailing in the company's managerial decision quality.

Q1. How well does your company perform in terms of the BI Management?

		Frequency	Percent
Valid	Not achieved	4	8.0
	Less achieved	5	10.0
	Neutral	14	28.0
	More achieved	27	54.0
	Total	50	100.0
Total		65	100.0

Table 3. Company perform in terms of the BI Management

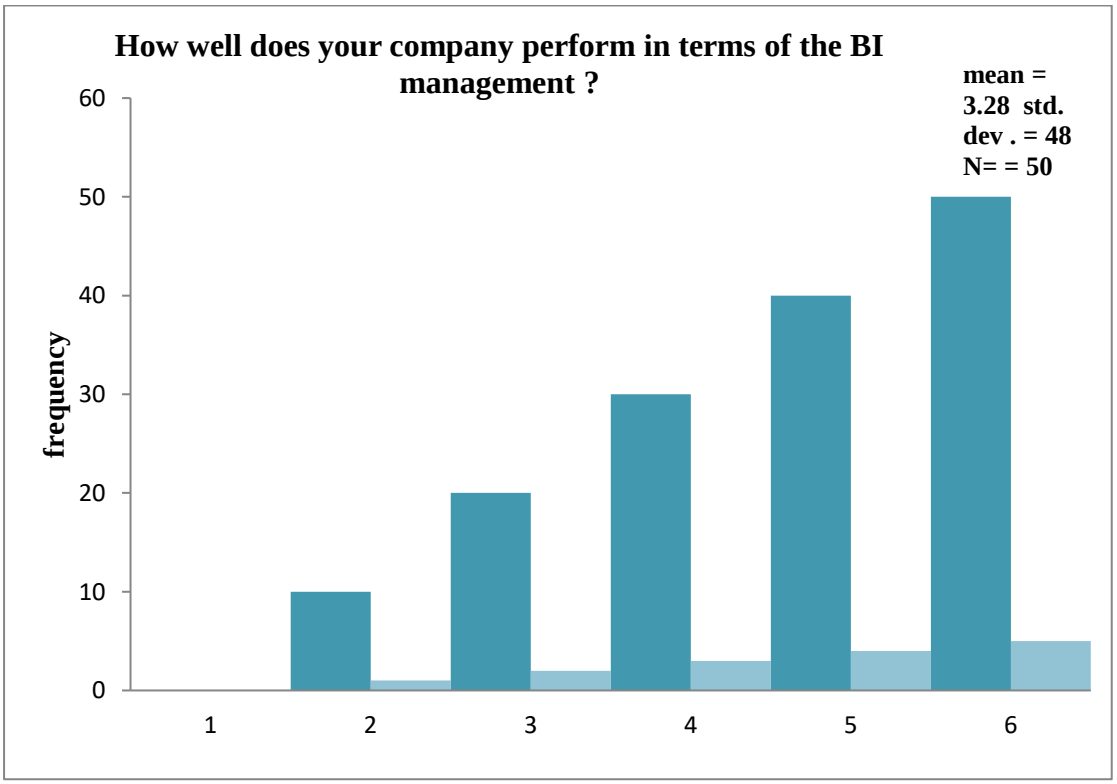

Table 3 presents the performance of company in the terms of the Business Intelligence Management. Out of all out 50 respondents, 8 % of respondents are not achieved BI in the performance of company, 10% of respondents are less achieved, 28 % of respondents are neutral, and 54% are achieved more BI in the performance of the company.

Q2. How well does your BI solution perform in terms of Decision Making?

		Frequency	Percent
Valid	Very negative	4	8.0
	Negative	5	10.0
	Neutral	19	38.0
	Positive	18	36.0
	Very positive	4	8.0
	Total	50	100.0

Table 4. BI solution perform in terms of Decision Making

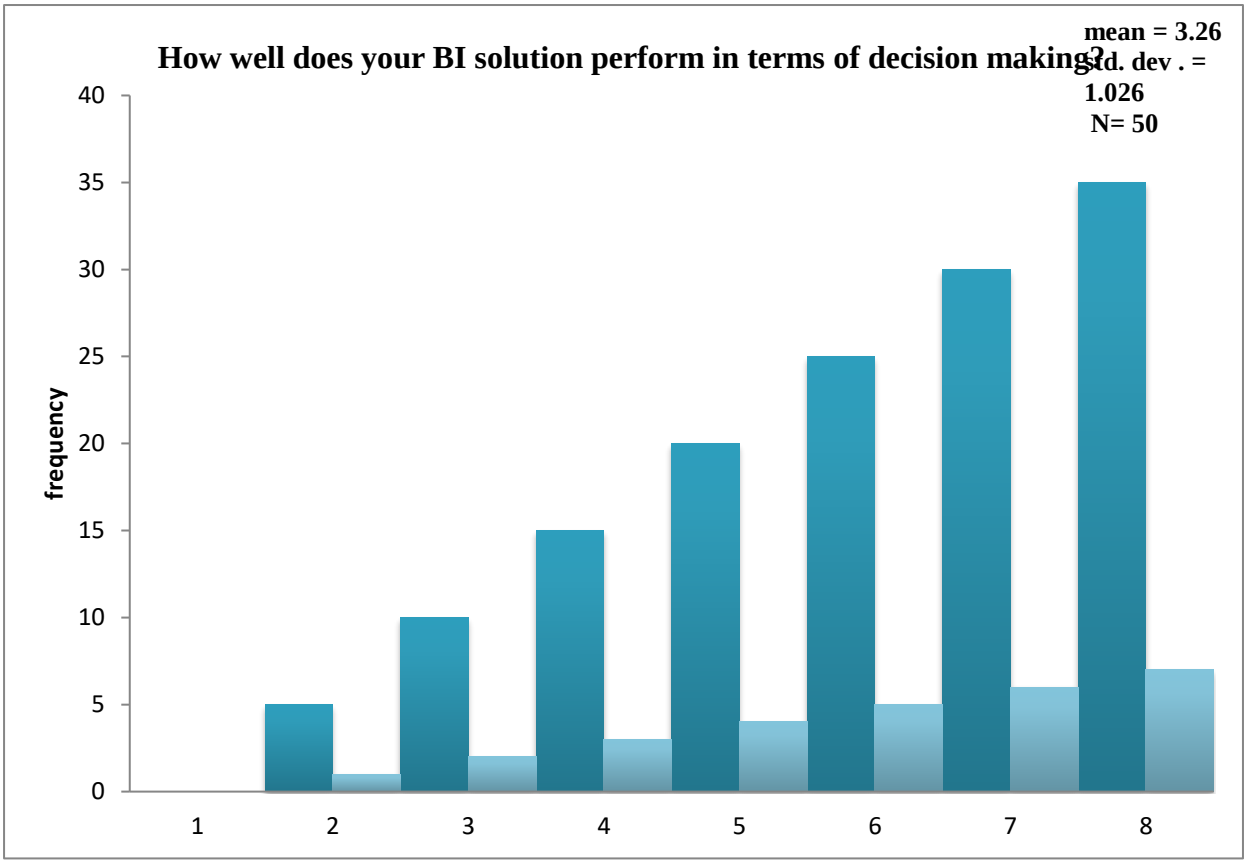

Table 4 presents the BI solution performs in terms of Decision Making. Out of all out 50 respondents, 8 % of respondents are very negative to perform the BI solution in terms of Decision Making, 10 % of respondents are negative, 38 % of respondents are neutral, 36% are positive and 8% are very positive to perform the BI solution in terms of Decision Making.

Q3. How well does your company perform in terms of Information Quality?

		Frequency	Percent
Valid	Not achieved	4	8.0
	Less achieved	9	18.0
	Neutral	15	30.0
	More achieved	22	44.0
	Total	50	100.0

Table 5. Company perform in terms of Information Quality

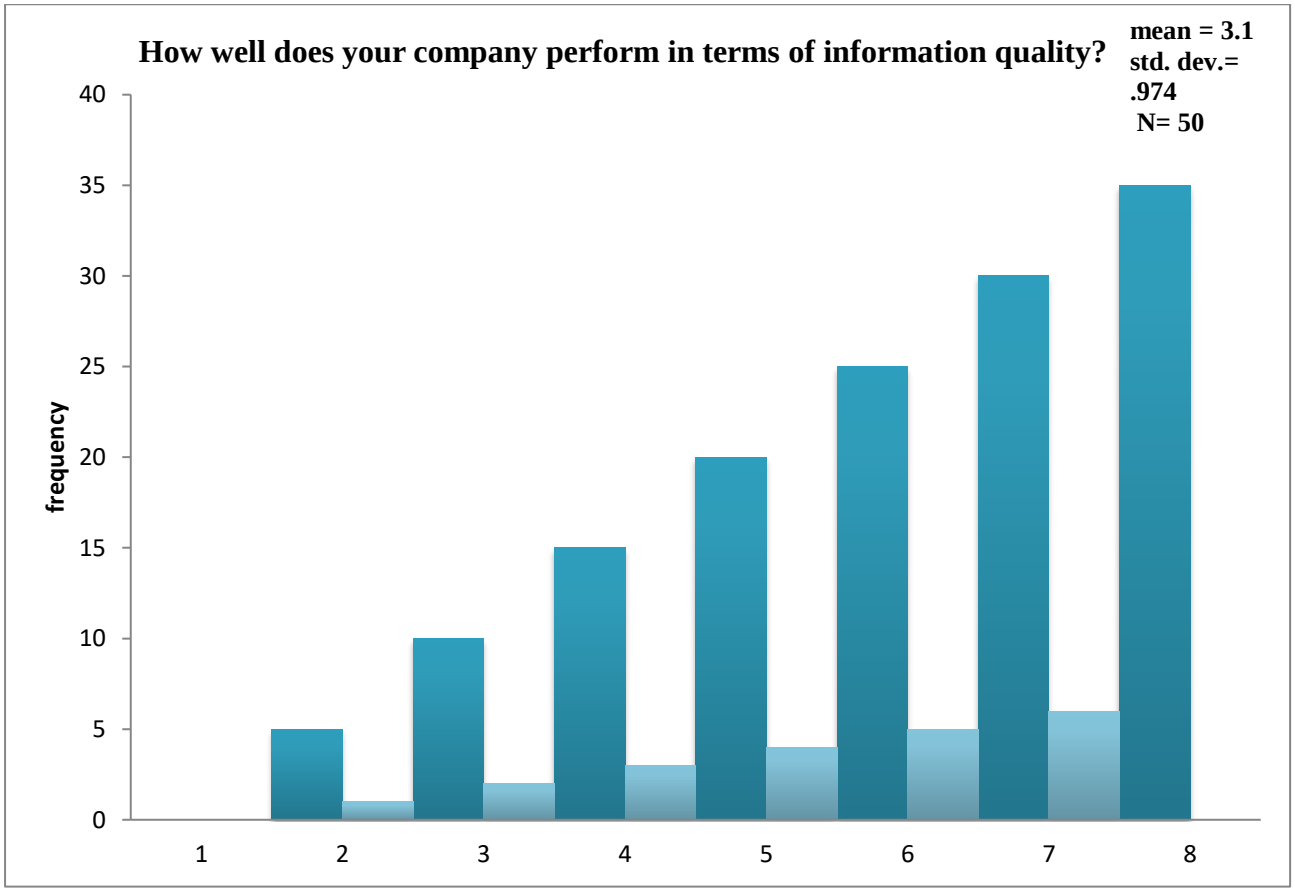

Table 5 presents the performance of the company in terms of Information Quality. Out of all out 50 respondents. 8 % of respondents are not achieved BI in the terms of Information Quality, 18% of respondents are less achieved, 30 % of respondents are neutral, and 44% are achieved more Business Intelligence in the terms of Information Quality.

Q4. How well does your company perform in terms of Data quality?

		Frequency	Percent
Valid	Not achieved	4	8.0
	Less achieved	10	20.0
	Neutral	14	28.0
	More achieved	17	34.0
	Fully achieved	5	10.0
	Total	50	100.0

Table 6. Company perform in terms of Data quality

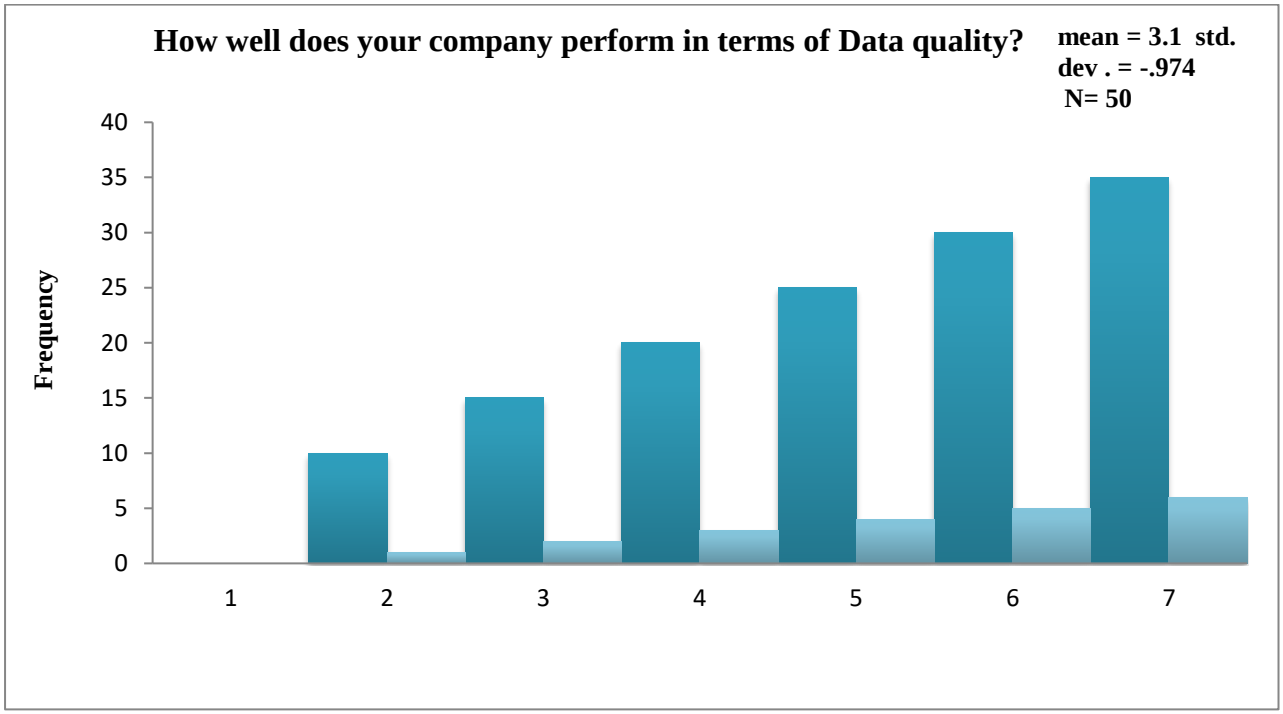

Table 6 presents the performance of the company in terms of Data Quality. Out of all out 50 respondents. 8 % of respondents are not achieved Business Intelligence in the terms of Data Quality, 20% of respondents are less achieved, 28 % of respondents are neutral, and 34% are achieved more Business Intelligence in the terms of Data Quality.

Q5. What types of BI tools are in use in your company?

		Frequency	Percent
Valid	Data visualization software	5	10.0
	Spreadsheets	22	44.0
	Digital dashboard	14	28.0
	Reporting and querying software	9	18.0
	Total	50	100.0

Table 7. BI tools are in use in your company

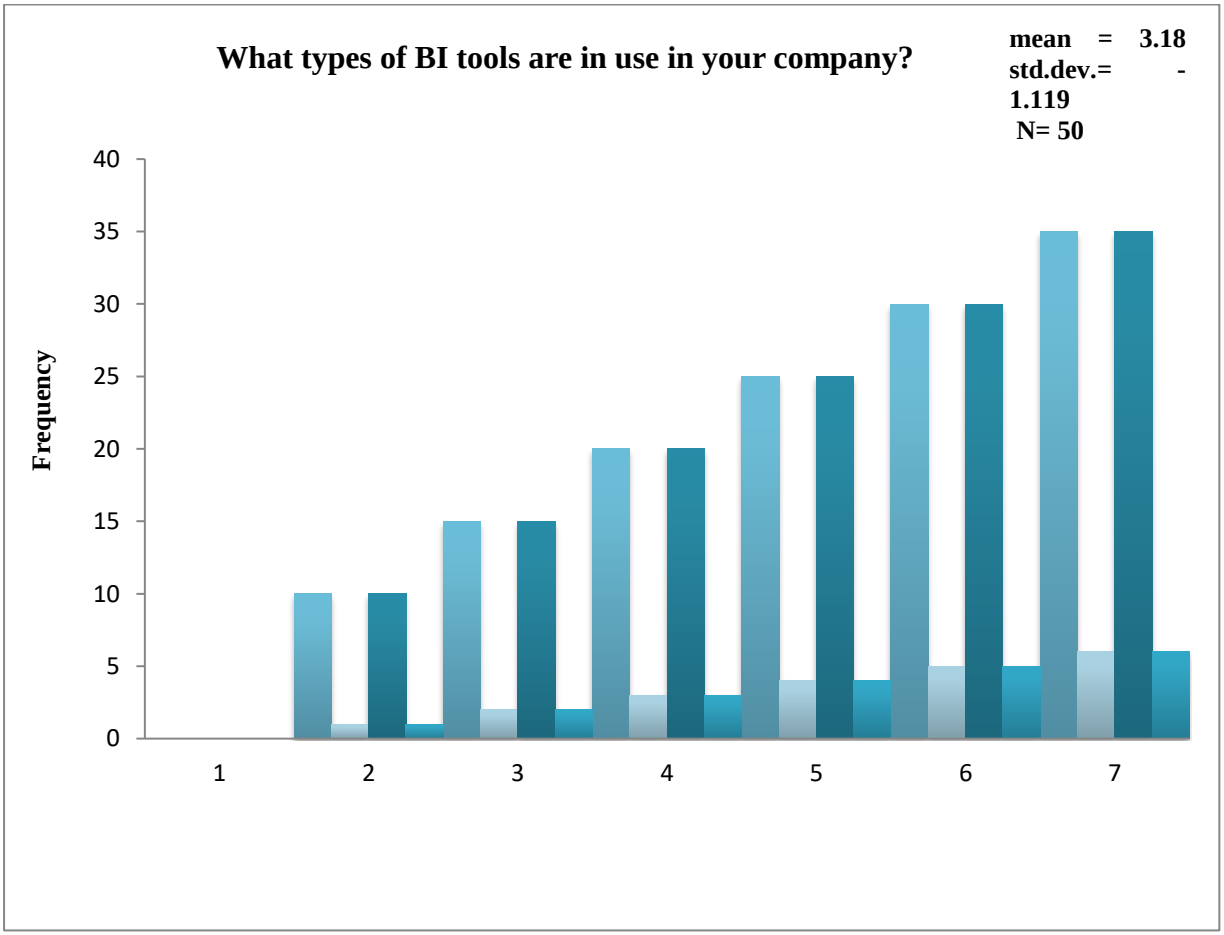

Table 7 presents what type of Business Intelligence tools are in used in the company. Out of all out 50 respondents. 10 % of respondents are used Data Visualization software, 44% of respondents are used spread sheet, 28 % of respondents are used digital dashboard, and 18% are used reporting and Querying software.

Q6. Which basic business functions or processes are directly supported by your BI solution?

		Frequency	Percent
Valid	Sales and Marketing	4	8.0
	Human Resource Management	23	46.0
	Accounting and Finance	19	38.0
	Distribution	4	8.0
	Total	50	100.0

Table 8. Processes are directly supported by your BI solution

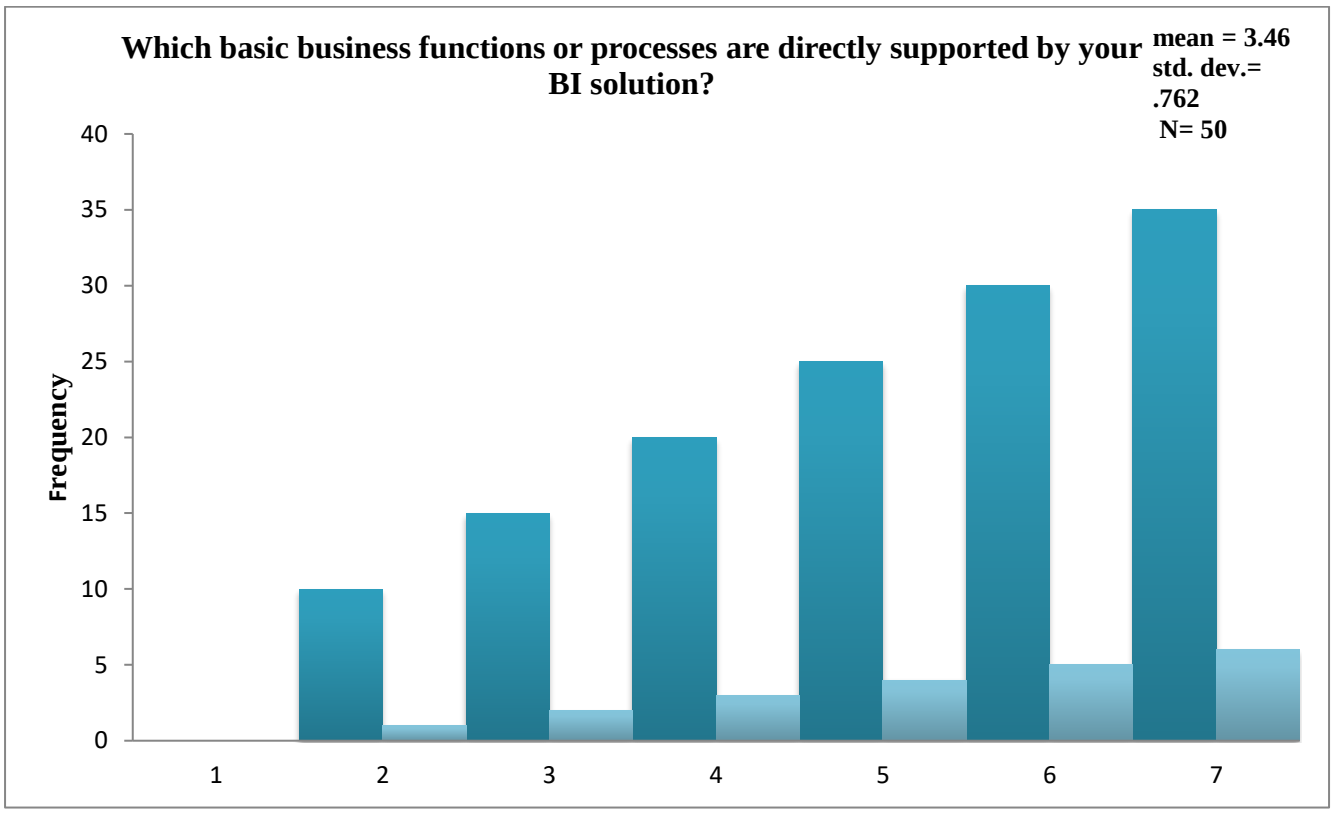

Table 8 presents the basic functions or processes are directly supposed by the BI solution. Out of all out 50 respondents. 8 % of respondents are used sales and marketing function, 46% of respondents are used human resource management, 38 % of respondents are used accounting and finance, and 8% are used distribution function.

Q7. Which industry sector does your company fall in?

		Frequency	Percent
Valid	Retail/Wholesale	4	8.0
	Financial Services	5	10.0
	Public Sector and Education	9	18.0
	IT	24	48.0
	Telecommunications	8	16.0
	Total	50	100.0

Table 9. Industry sector does your company fall in

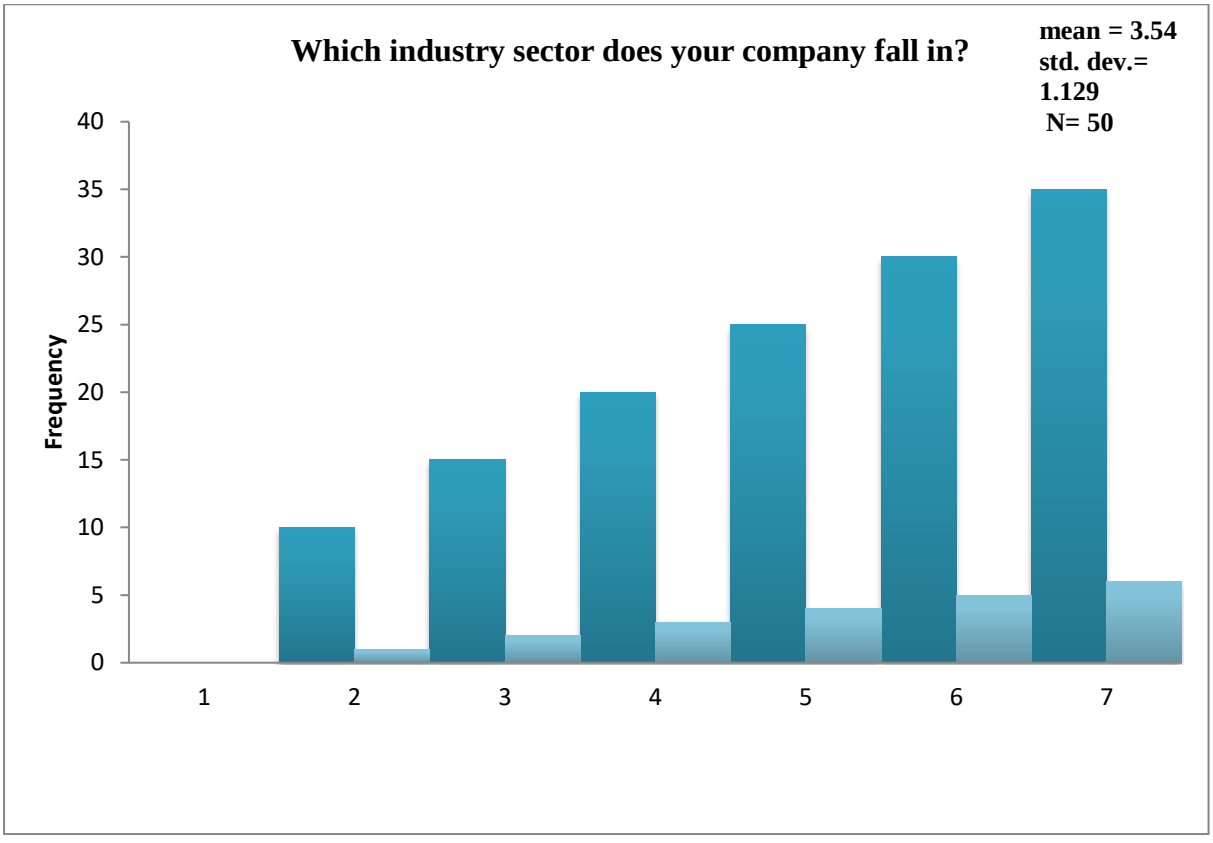

Table 9 presents the company fall in the industry sector. Out of all out 50 respondents 8 % of respondents are fallen in Retail and wholesale industry, 10% of respondents are fallen in Financial Service , 18 % of respondents are fallen in Public sector and education, 40% are fallen in IT. 16% of respondents are fallen in Telecommunication Industry.

Q8. What benefits did your company get by using business intelligence technology?

		Frequency	Percent
Valid	Faster analysis	14	28.0
	Increased organizational efficiency	13	26.0
	Improved customer experience	9	18.0
	Improved employee satisfaction	10	20.0
	Increased competitive advantage	4	8.0
	Total	50	100.0

Table 10. Benefits did your company get by using business intelligence technology

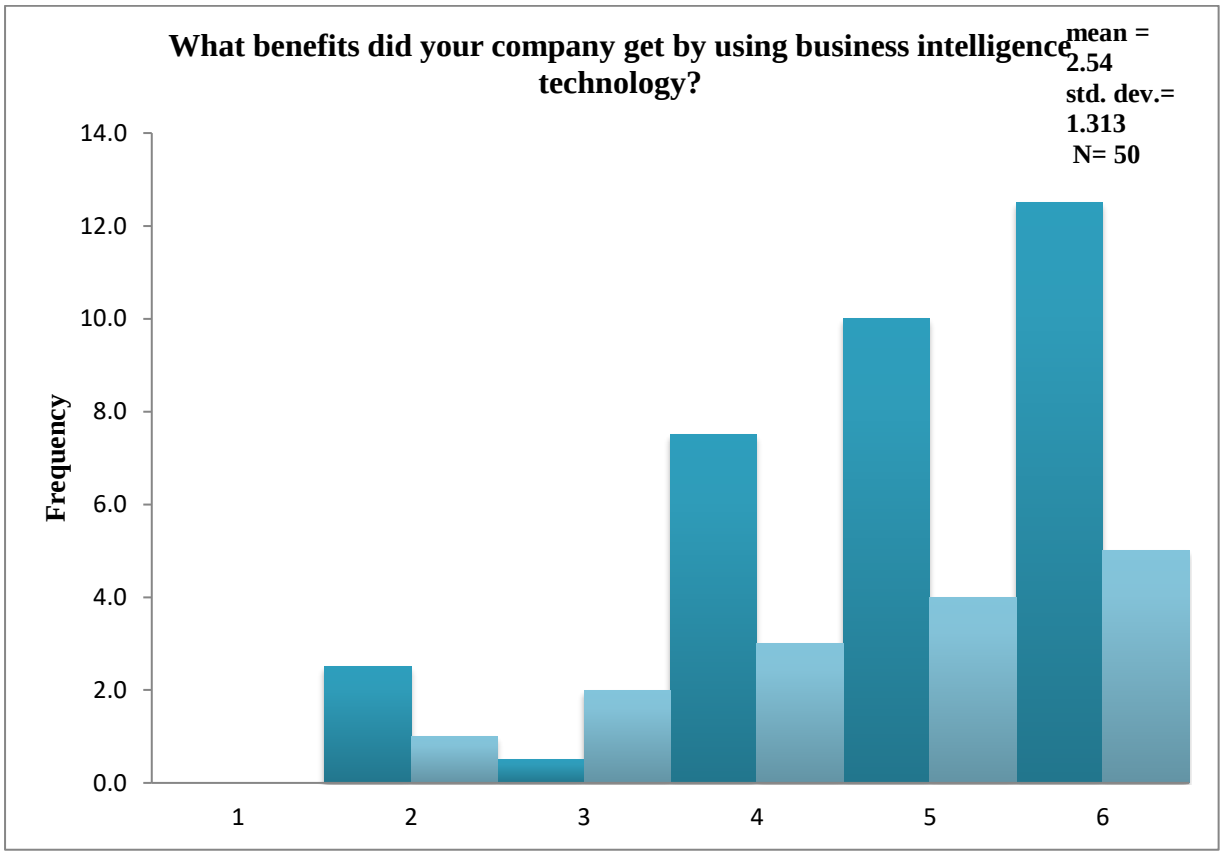

Table 10 presents the benefit of company get by using business Intelligence technology. Out of all out 50 respondents. 28 % of respondents have faster analysis, 26% of respondents have Increased organizational efficiency, 18 % of respondents has Improved customer experience .20% has Improved employee satisfaction. 8% of respondents has Increased competitive advantage.

Q9. How would you assess the current business situation of your company in the area of business intelligence?

		Frequency	Percent
Valid	Good	4	8.0
	Satisfactory	18	36.0
	Bad	9	18.0
	Very Bad	19	38.0
	Total	50	100.0
Missing	System	15	
Total		65	

Table 11. Current business situation of your company in the area of business intelligence

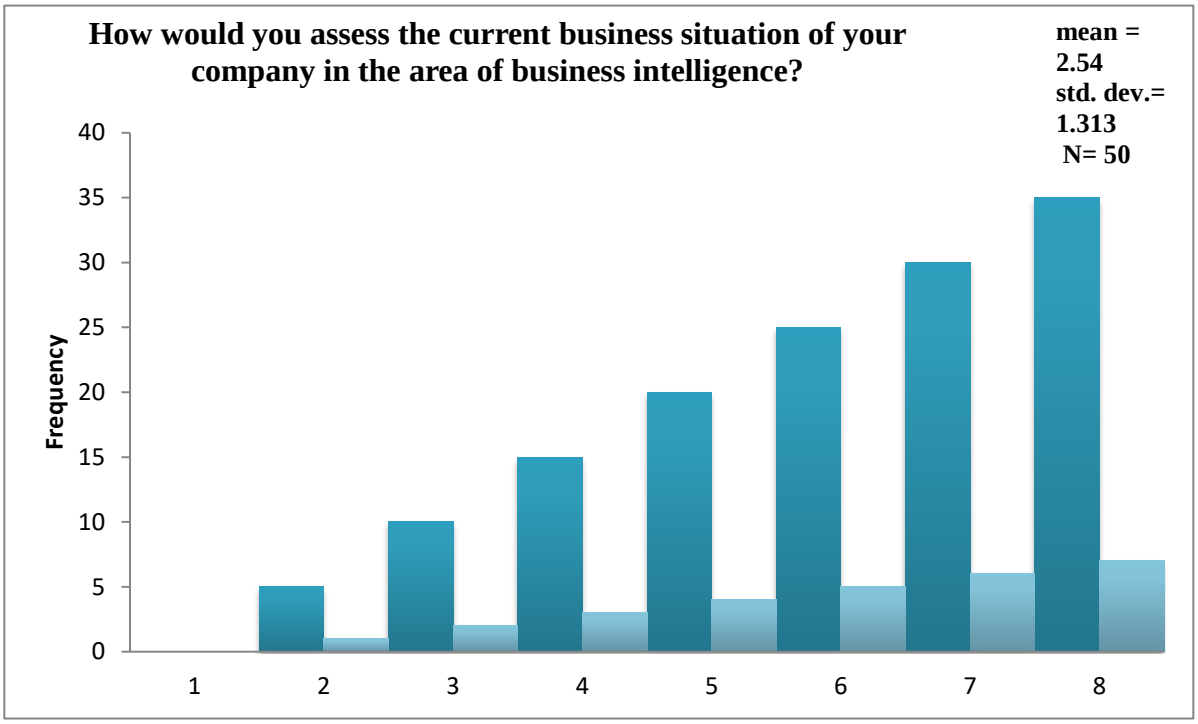

Table 11 presents the current business situation of the company in the area of business intelligence. Out of all out 50 respondents. 8 % of respondents are in good business situation, 36% of respondents are satisfied, 18 % of respondents are bad and 38% are in bad situation.

Q10. What is the greatest difficulty for your company's business in the area of business intelligence?

		Frequency	Percent
Valid	Raising capital and financing	22	44.0
	Poor customer payment behaviour	9	18.0
	Low publicity	19	38.0
	Total	50	100.0
Missing	System	15	
Total		65	

Table 12. Difficulty for your company's business in the area of business intelligence

Table 12 presents the greatest difficulty for company business in the area of business intelligence. Out of all out 50 respondents. 44 % of respondents have Raising capital and financing difficulty, 18% of respondents have Poor customer payment, 38 % of respondents have Low publicity difficulty faced by the company in the area of business intelligence.

4.5 Correlations between the variables:

This section of the dissertation tests the correlation between Business Intelligence and Quality decision making, data Quality and Information quality. The most normal social measurement is known as connection, and it is estimation of the strength of some connection between two factors yet not causality. Translation of a relationship coefficient doesn't permit the smallest touch of causality.

Pearson's relationship coefficient, (ρ, likewise meant by rs) gauges the strength and heading of relationship between two positioned factors.

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence Management	3.2800	.94847	50
Business Intelligence Tools	3.5400	.90824	50

Table 13. Descriptive Statistics wit BI Management and Tools

Correlations			
		Business Intelligence Management	Business Intelligence Tools
Business Intelligence Management	Pearson Correlation	1	.342*
	Sig. (2-tailed)		.015
	N	50	50
Business Intelligence Tools	Pearson Correlation	.342*	1
	Sig. (2-tailed)	.015	
	N	50	50
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 14. Correlations Between BI management and Tools

Independent variable: Business Intelligence Management and Business Management tools. Business Intelligence Management was associated with Business Intelligence tools positively (r = 0.342)

Descriptive Statistics			
	Mean	Std. Deviation	N
Decision making	3.2600	1.02639	50
Data quality	3.1800	1.11922	50
Information quality	3.1000	.97416	50

Table 15. Descriptive Statistics with Decision making and Data quality and Information Quality

Correlations				
		Decision making	Data quality	Information quality
Decision making	Pearson Correlation	1	.705**	.831**
	Sig. (2-tailed)		.000	.000
	N	50	50	50
Data quality	Pearson Correlation	.705**	1	.882**
	Sig. (2-tailed)	.000		.000
	N	50	50	50
Information quality	Pearson Correlation	.831**	.882**	1
	Sig. (2-tailed)	.000	.000	
	N	50	50	50
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 16. Correlations between Decision making and Data quality and Information Quality

Data quality is associated with Decision making positively (r = 0.705).Decision making is associated with Information Quality positively (r =0.831). Information Quality is associated with Data Quality positively (r = 0.882).

Descriptive Statistics			
	Mean	Std. Deviation	N
Decision Making	3.2600	1.02639	50
Business Intelligence Management	3.2800	.94847	50

Table 17. Descriptive Statistics with Decision making and BI Management

Correlations			
		Decision Making	Business Intelligence Management
Decision Making	Pearson Correlation	1	.595**
	Sig. (2-tailed)		.000
	N	50	50
Business Intelligence Management	Pearson Correlation	.595**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 18. Correlations between Decision making and BI management

Business Intelligence Management is associated with Decision making positively (r = 0.595).

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence Management	3.2800	.94847	50
Data Quality	3.1800	1.11922	50

Table 19. Descriptive Statistics with BI management and Data quality

Correlations			
		Business Intelligence Management	Data Quality
Business Intelligence Management	Pearson Correlation	1	.682**
	Sig. (2-tailed)		.000
	N	50	50
Data Quality	Pearson Correlation	.682**	1
	Sig. (2-tailed)	.000	
	N	50	50
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 20. Correlations between BI management and Data quality

Business Intelligence Management is associated with Data Quality positively (r = 0.682).

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence Management	3.2800	.94847	50
Information quality	3.1000	.97416	50

Table 21. Descriptive Statistics with BI management and information quality

Correlations			
		Business Intelligence management	Information quality
Business Intelligence management	Pearson Correlation	1	.698**
	Sig. (2-tailed)		.000
	N	50	50
Information quality	Pearson Correlation	.698**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 22. Correlations between BI management and information quality

Business Intelligence Management is associated with Information Quality positively (r = 0.698).

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence Tools	3.5400	.90824	50
Decision making quality	3.2600	1.02639	50

Table 23. Descriptive Statistics with BI tools and Decision making quality

Correlations			
		Business Intelligence Tools	Decision making quality
Business Intelligence tools	Pearson Correlation	1	.394**
	Sig. (2-tailed)		.005
	N	50	50
Decision Making	Pearson Correlation	.394**	1
	Sig. (2-tailed)	.005	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 24. Correlations between BI tools and Decision making quality

Business Intelligence Tool is associated with Decision making positively (r = 0.394).

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence tools	3.5400	.90824	50
Data quality	3.1800	1.11922	50

Table 25. Descriptive Statistics with BI tools and Data quality

Correlations			
		Business Intelligence tools	Data quality
Business Intelligence tools	Pearson Correlation	1	.746**
	Sig. (2-tailed)		.000
	N	50	50
Data quality	Pearson Correlation	.746**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 26. Correlations between BI tools and Data quality

Business Intelligence Tool is associated with Data Quality positively (r = 0.746).

Descriptive Statistics			
	Mean	Std. Deviation	N
Business Intelligence tools	3.5400	.90824	50
Information quality	3.1000	.97416	50

Table 27. Descriptive Statistics with BI tools and information quality

Correlations			
		Business Intelligence Tools	Information Quality
Business Intelligence Tools	Pearson Correlation	1	.561**
	Sig. (2-tailed)		.000
	N	50	50
Information Quality	Pearson Correlation	.561**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 28. Correlation between BI tools and Information Quality

Business Intelligence Tool is associated with Information Quality positively (r = 0.561).

5 RESULT AND DISCUSSION

The motivation behind this exploration was to notice the connection between autonomous factors (Business Intelligence Management and Business devices) and dependent variables (Decision making Quality, Data Quality and Information Quality). The cronbach's value of the reliability test is 0.818 which is reliable for this study. After applying correlation between independent variables namely the Business Intelligence Management and Business Intelligence tools we observed that there is positive relationship between them (p=0.15 , which is > than the 0.05) and there is no connection between the reliant factors namely decision making quality, data quality and information Quality. After analyzing the Independent variables and Dependent variables we found that there is no relationship between Business Intelligence Management and Decision making Quality, Data Quality and Information Quality and also there is no relationship between Business Intelligence Tools and Data Quality and Information Quality but there is critical connection between the Business Intelligence devices and Decision making quality (p=0.005). Thus, alternate hypothesis H1 is accepted. Cronbach's Alpha is more than 0.70 for all components of business intelligence, employee performance, decision making, and bank performance, which is favorable for the study. The findings demonstrated that the components of business intelligence systems had a strong positive association with the quality of decision making, employee performance, and bank performance. Furthermore, the results demonstrated that the use of a business intelligence system in those selected banks had a significant impact on decision quality, staff performance, and bank performance. The survey also found that business intelligence systems play an important role in banking operations. The researcher has devised a number of hypotheses to investigate the relationship between business intelligence systems and decision-making quality, employee performance, and bank performance. Also, to see if there are any discrepancies between business intelligence system dimensions, decision-making, bank and employee performance. Furthermore, there was a strong positive correlation between all components of a business intelligence system and bank performance, a moderate positive correlation between components of a business intelligence system and employee performance, and a strong positive correlation between components of a business intelligence system and decision quality.

6 CONCLUSION

Decision making quality played a significant role with business intelligence, because this is the only variable through with the whole programs and strategy can be created. With step by step looping decision making can enhance several factors of business success. The significant end can be ordered into two classifications with regards to basic insight concerns. From one viewpoint, in light of the fact that inside associated information is handled, creating or giving insight for the principal classification of vital choices and difficulties was very basic. The organization's information, just as that of its essential rivals and clients, is very simple to get and process. All the more remotely seasoned information in regards to unanticipated future events, indirectly related market entertainers or non-quantitative situations, then again, isn't clear all the time to process and requires fundamentally more human communication. As far as outside information, I'd need to accentuate the importance of outer information sellers, who can sporadically stay away from these inconveniences. In any case, we have exhibited that bi can obviously supplement these human exercises by, for instance, offering assessments and configuration support in situation studies, which can bring about upper hand whenever done accurately. The three key examination procedures generally come to a similar outcome. Data quality and information quality may have matter of further thoughts and curriculum of business sector, but finally, through this analytical study we have found out that only business intelligence can have only significance relationship with decision making quality

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