**Strategic decision making by using busniess intelligence**

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*Abstract*—*The research is conducted with the aim to understand how BI and analytics have solved issues related to everyday business activities. Application of using BI in big and small businesses, Impact of BI in decision making and acceptance of BI by the top and lower management are the key discussion area of this research. Assimilating and assessing data for business insights seems easy on paper but there can be many hidden complexities and challenges. Sorting out important data from an irrelevant set alone can be a time-consuming process. The complexities can further increase if the range of data incorporation is expanded to international regions. We have highlighted the experts’ views on BI issues with adoption, utilization and business success. The reviews concluded that BI helps businesses draw conclusions from data analysis. Moreover, Data scientists dig into the specifics of data, using advanced statistics and predictive analytics to discover patterns and forecast future patterns. But, till date only 52% of software companies and 50% of finance companies use BI tools and the global business intelligence adoption rate is 26% only. Other 50% has shown desire to implement BI because they believe it will be an effective solution for businesses to integrate global business data for strategic decision making. . Integrating BI in a global context can help organizations gain a huge competitive edge in the international market and quickly scale operations in other countries. The percentage of business not adopting BI is because of the fear of losing their personal data to competitors. (Khan et. Al).*

Keywords—Software engineering, AI, SDLC (software development lifecycle), ML, NLP LCNC (low code no code).

# Introduction

In order to enable their businesses to make well-informed and strategic decisions regarding them, organizations looking to improve their business processes use technology, applications, strategies, and practices that are used to gather, analyses, and integrate other essential information. BI enables users to make use of crucial data and derive valuable insights from both historical and current data. The use of business intelligence tools, which analyses large data sets from numerous sources and provide the findings and insights in visually appealing formats that are simple to comprehend and act upon, enables this. To improve their performance, industries in Pakistan have also embraced BI tools and methodologies. Engro, one of Pakistan's largest conglomerates with investments in petrochemicals, energy, chemical storage, agriculture, fertilizers, and food, worked with GE to hasten the transformation of its business into a digital industrial powerhouse by selling GE solutions and acting as a system integrator of GE Power's digital solutions. In order for Pakistan's power generation sector to advance past more established technology and join the global digital power transition, which is predicted to generate $1.3 trillion in value between now and 2025, they set out to purchase the most recent cloud technologies.

Business has become more international over the past 20 years, especially in the Asia Pacific region, where Singapore, Japan, Taiwan, and South Korea are among the Asian economies widely seen as experiencing rapid growth (Tan & Lui, 2002). The adoption of performance management technique, the use of visualization technology, and the simplicity of interfaces are the three main causes of the region's recent quick growth, according to Janakiraman (2011). Additionally, the accessibility of superior software solutions is fostering the trend of BI adoption by offering a number of advantageous features like enhanced information access, search, and collaboration, among others. After experiencing the economic crises, enterprises have actually grasped the value of BI (Syed Saif Ali Shah, 2012).

This study's objectives are to increase BI adoption among firms in Pakistan and to evaluate its effects. The economy began to expand but Pakistan's base of finished and intermediate industrial goods remained small, which caused the trade imbalance to skyrocket to a high level. Imports of these goods cannot be significantly reduced unless local industry is encouraged and given incentives to manufacture things that can successfully compete with imported completed goods in the sectors of food, clothing, and household goods. BI may play a vital part in enhancing the process of producing goods in Pakistan and exporting them for economic growth. If at least 60% of Pakistani industries don't employ BI tools and processes, Streamline the manual procedures. Nothing can stop the catastrophes.

# LITERATURE REVIEW

Using BI tools helps provide businesses an edge over their rivals by studying market trends, highlighting new opportunities, and generating new strategies, according to research conducted by Jan P. Herring et al. From business-to-business (B2B) to business-to-consumer (B2C), these tools may also assist firms in understanding their customers' and clients' demands and in optimizing their services (B2C). These tools can also be used internally by businesses to track staff productivity in real time. Further discussion focused on how business intelligence tools might help organizations integrate international business data for strategic decision. making. Organizations can obtain a significant competitive advantage in the global market and scale operations in additional nations fast by integrating BI in a global environment. IN PAPER[1] THE Nuno Caseiro et al. used a sample of 228 startups from various European nations to analyse the direct benefits of business intelligence (BI) on performance as well as the indirect effects through network learning (NL) and innovativeness (INNOV). They came to the conclusion that BI has a major impact on network learning, innovativeness, and business performance, particularly for startups. According to the survey, new businesses frequently face resource constraints that might make deploying BI equally difficult, but they can benefit from enhanced decision-making, reduced time and cost, and network connections made possible by BI.

According to Michael Neubert et al., due to a lack of data as well as insufficient experience and knowledge, only a small number of businesses currently use business intelligence solutions in terms of big data and predictive analytics to support their international strategic decision-making processes, such as the evaluation and selection of foreign markets. According to research, there is a significant need for training and consultancy since CEOs, shareholders, and founders require concrete examples of how to evaluate and choose new international markets in order to comprehend the advantages of digitization. The ideal setting for business intelligence solutions using big data and predictive analytics to support international operations is one with rapid change, enormous amounts of data, major risks, and long-term financial commitments and support entrepreneurs with limited resources in their global strategic decision-making processes. Business intelligence has recently risen to the top of the international IT market's list of hot topics. The significance of businesses has greatly expanded in this regard. According to a research study by Otmane Azeroual et al., firms needed the right technology to retain, store, and analyse massive amounts of data in order to make decisions. They also needed this technology to assist them draw conclusions from the data that was available. Businesses are helped in making their business-critical data and processes transparent and intelligent through the use of BI tools Employees were seen to be able to make better decisions, get the desired results faster, and continually improve. The ability of BI systems to help businesses boost added value, lower costs, decrease risks, and improve customer and supplier relationships is another benefit. Massive amounts of data are available without the usage of BI tools, but they spread confusion and eventually make business more difficult. NoorUlAin et al. criticised how businesses throughout the globe haven't adopted BI to produce the most amount of corporate benefit. This study identified the main barriers to firm performance as well as the adoption, use, and success that may be achieved as a result of BI implementation. Additionally, it discussed BI applications that have received more or less attention. Apparently, she Prior to starting BI projects, it is important to take into account how mature an organization's information is because this has a significant impact on BI technologies. For example, the lack of data at their disposal prevents possible value-adding data analytics operations. Other issues could be related to the company's human resource's capacity and skill.

According to Uday Kulkarni, firms can dramatically increase their efficiency by deploying business intelligence software, as seen in the evaluations above. In order for managers to evaluate data across several dimensions and spot inefficiencies in sales and operations, senior management must use business intelligence (BI) software solutions within organizations. Additionally, by studying methods, business intelligence software solutions allow to produce fresh insights and reports of ROI (return on investment). This may lead to the organization discovering new revenue opportunities.

In this study, Neil Foshay discussed the underutilization of BI technologies. To preserve a competitive edge, businesses transitioned from traditional hierarchical systems to matrix organizations. Businesses now turn to BI as their main strategy for solving problems like inefficient resource use, decreased production, frequent hiring and firing, a skills shortage, etc. Neil also discussed how Mata data is used to comprehend and efficiently use information resources to support various business operations and enable advanced analytics. And how without it, businesses are unable to handle the enormous amounts of data that are created and gathered throughout an organization. In his research, Tuncay Bayrak addressed the differences between distributed and centralized organizations, where formal decision-making authority is divided amongst many teams and often exercised by a senior leader. He suggested that both benefit significantly from BI as a key element. The way decisions were made before BI provided models, methods, and channels for the dissemination of knowledge has changed. BI also offers a framework for making decisions through analytics. By employing BA to provide vital information and analysis on the company's present and historical performance as well as on future trends, anticipated demands, and customer behaviour, BI has assisted businesses in making well-informed decisions on strategic issues. Companies receive real-time enhanced reports to make sure they can effectively manage their business with the facts at hand.

# MTHODOLOGY

All organizations rely on data produced as a result of information from the many internal and external sources used by the company. Additionally, these data channels act as a second set of eyes for executives, providing them with analytical data about the state of the market and the company. Therefore, any misunderstanding, inaccuracy, or absence of information may result in a distorted perception of the state of the market as well as internal operations, which will then result in poor decisions.

Keep data-driven decisions necessitate a comprehensive understanding of every facet of an organization. But how can you make unstructured data chunks useful? Business intelligence is the response. The implementation of BI in enterprises will be covered in this section of the study. Four steps can be used to categories the entire business intelligence process:

• Data gathering

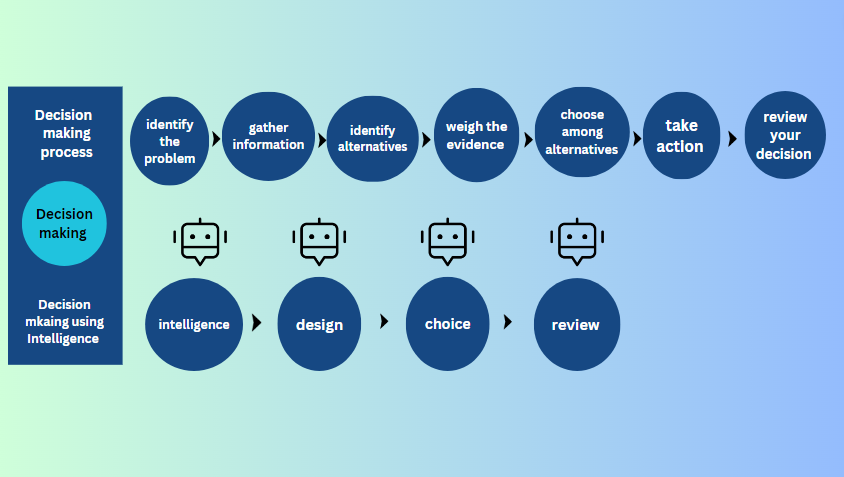
• Data cleaning/standardization

• Analysis

• Reporting

• The utilization of genuine tools for data

Processing is the most important aspect of BI implementation. A business intelligence infrastructure is made up of several tools and technology.



# Decision making in busniesses:

There are seven (7) steps involved in business decision-making process. Here are the 7 steps as follows;

## Identify the problem:

As a businessperson, you must first define the issue, or the issue that you are trying to solve. When defining the issue, it's important to keep in mind that it shouldn't be too general or ambiguous; rather, it should be exact and detailed.

A vague or ambiguous definition of the issue could influence your decision-making. Therefore, problem identification must be well stated if you want to succeed.

## Gather Relevant Information

Use You've reached the point when you should start gathering pertinent information after recognizing the issue. Information should be gathered from both internal and external sources. I refer to internal sources as being the company's history. On the other hand, external sources included case studies, study summaries written by paid consultants, or external publications.

At this point, it's possible that you'd feel overwhelmed by the amount of information available. As a result, you should carefully filter all the material to include only the facts and statistics that are pertinent to your circumstancedrive”.

## Identify the Alternatives:

## You have discovered the issue and gathered the necessary data. You should now think of at least a few alternatives or options for them to choose from.

## Weigh the Evidence:

The Once you have a variety of possibilities, make your decision. Now consider the successes and failures of your business and what it requires at this point. Additionally, research other businesses that have experienced this time and how they reached their decision. Then you should select the alternative that offers your company the best possible benefit and the lowest likelihood of failure.

## Choose Carefully among Alternatives:

The After going through each step—problem identification, information gathering, developing a substitute, and analyzing the evidence—you will have a complete understanding of your company's condition and the best course of action. In other words, you are currently in a position where you can make a decision.

You are now completely aware of the scenario facing your firm and the best course of action after going through all the steps from problem identification to information gathering to formulating an alternative to weighing the evidence. In other words, you have all the decision-making power you need at this point.

## Review Your Decision:

## You should now review your decision after going through all the stages of the decision-making process.

## **Problems with traditional decision-making in businesses:**

Any judgement that is efficient and wise should be free of bias and preconception. It ought to assist businesses in achieving their objectives. The problem must be resolved, and it must offer the most value possible. With the conventional decision-making methods that organizations have been employing for years, that may be impossible to accomplish style provided by the drop down menu to differentiate the head from the text.

## **Problem misidentification**

#### A vague or ambiguous definition of the issue may result in hazy decisions. To accomplish corporate objectives, problem identification must be precisely defined.

#### **Information Overload**

#### Dealing with data and information that comes from several sources and departments of origination can be very challenging. Making poor decisions might result from choosing which facts to value and which one is less valuable. **Misleading the Problem**

#### The most important step in the decision-making process is the accurate diagnosis of the issue, as this will give you a solid foundation from which to proceed.

#### **Overconfidence in the Outcome**

#### When decision-makers are confident in their choice, they run into a second issue. Instead of being cautious and constantly searching for a backup plan, what should be the next course of action if that doesn't work? They grow so certain of their outcome that the dependent aspect is completely ignored. They have to repeat the process since even the smallest error in the outcome would force them to start over.

#### How can BI make business decision be making better:

#### In order to gather, process, analyze, and present data to gain insights, a variety of tools and applications are utilized. These tools are essential for SMEs' decision-making processes. Organizations employ real-time insights to comprehend the existing and future market conditions rather than depending on hunch and dated data. As a result, management can make decisions with greater freedom.

#### Enterprises can use business intelligence to gather and store data in a central database that is accessible to all departments. This guarantees that everyone has access to the most recent information and can work with other departments to boost output and sales.

#### Without using the right software and technology, enterprises cannot expect to get the desired results. Adopting and investing in BI tools can change the way businesses look at data. There are many benefits of using Decision Making Platforms.

* Extract vast amounts of unstructured data and process it
* Identify market trends
* Stay ahead of competitors
* Create improved growth patterns
* Develop a self-service culture in the enterprise
* Identify more revenue opportunities in the market
* Make use of artificial intelligence and machine learning algorithms to automate the process
* Improve the flexibility and scalability of services in the enterprise
* Make data-driven decisions based on accurate predictions

Eliminate the risk of Investing in business intelligence tools can help an organization achieve all of its short- and long-term objectives, from increasing employee productivity to increasing sales and profits.

To determine which BI technologies are appropriate for the firm, hire consultancy services from the top companies on the market. It takes professional assistance to redesign business procedures such that the firm is data-driven. The greatest method to outperform other SMEs and be prepared to handle any anticipated and unanticipated changes in the industry is to use business intelligence (BI).

# conclusion*:*

Any company that uses BI will result in better business decisions. There is a tone of data in an organization. A few examples of the various types of data that might be present include clients, suppliers, invoices, purchase orders, pay stubs, employee information, sales data, financial data, training data, product data, client information, etc. Managing such vast, ever-growing amounts of data becomes difficult. Business intelligence (BI) solutions have benefited companies by making the administration of these enormous volumes of data simpler through the use of technologies like analytics and data warehousing. The outcomes from different BI applications across sectors are enumerated above. Users may acquire data about their clients, produce extensive reports and understandable visualizations, and monitor important performance indicators for their business all with just one tool. BI has significantly changed the potential future decision-making processes for businesses. A few of the crucial intelligences that have been implemented by the majority of enterprises include predictive and prescriptive analytics tools, data quality management (DQM), and the multi-cloud strategy. As a result, practically every company has claimed that it has exceeded all expectations. One sector where real-time customer communication has proved successful is the hospitality.

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