



Business Intelligence System: An Assessment for Business Decision Making

Dr. N. Santosh Ranganath

Assistant Professor, Department of Commerce and Management Studies
Dr.B.R.Ambedkar University, Srikakulam, Andhra Pradesh, India

Abstract: Business intelligence system, crucial to the success of any competitive organization, can be greatly enhanced through the use of a superior business intelligence product. Finding an advanced business intelligence product is a tricky prospect. It must not only access the most respected sources available, it must deliver intelligence quickly and accurately and allow information to be tailored for the needs of individual users. It should also build on investments those have already made in information architecture by integrating seamlessly with other applications. Business intelligence product should place information squarely in front of the users by integrating information into the daily workflow. This paper aims to investigate the impact of Business Intelligence Systems on the quality of business decision-making. Business Intelligence System is an organization concept and tool that assists businesses in effectively managing and refining business information to facilitate informed decision-making. By identifying and evaluating the primary components of BIS capabilities, the study aims to determine their significance and impact on organizational decision-making processes.

Keywords: Business Intelligence Systems, Knowledge Management Systems, Business Analytics, Artificial Intelligence, Decision Support Systems and Business Decisions.

Introduction

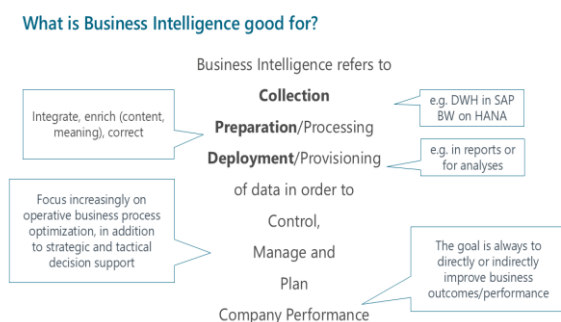
A Business Intelligence System (BIS) is a technology-driven framework that collects, cleans, stores, and analyzes raw corporate data to deliver actionable insights. Assessing a BI system for decision-making involves evaluating its data quality, processing speed, visualization clarity, and alignment with strategic goals to replace guesswork with factual reality. Business Intelligence has taken on a central role in day-to-day business. Companies of all sizes and from all sectors have recognized that data is not just a resource, but a decisive factor for business success. BI systems make it possible to gain valuable insights from a flood of data in order to make well-founded decisions and achieve strategic advantages. The rapid pace of technological progress and the associated constant change in the world of business intelligence make it difficult to keep an eye on everything. In order to give you a comprehensive and comprehensible understanding of the dynamics and scope of this essential business area, which provide in-depth analyses and assessments in the field of Business

Intelligence & Analytics. These resources are designed to identify the latest trends, tools and strategies in BI and analytics and provide you with the highest possible level of decision-making security when selecting software and strategically embedding Business Intelligence.

The term Business Intelligence refers to technologies, applications and methods that are used to collect, integrate, analyze and present business data. The aim is to make better business decisions, enable a strategic market vision and thus improve the company's performance. Whether through reports, analyses or dashboards, BI enables companies to gain valuable insights from their data.

This data is collected from internal systems and external sources, then processed, analyzed and presented, often in the form of reports, dashboards, infographics, charts and maps. These visualizations make complex data sets accessible and understandable, enabling users to identify trends, evaluate performance and make predictions.

Fig.1 Business Intelligence framework



The role of business intelligence has evolved over time. In the past, the focus was on providing information in the form of periodic reports. Today, BI is more dynamic and interactive, enabling real-time analysis and ad-hoc queries to provide quick answers to business questions. Natural Language Processing (NLP) enables a wider audience to easily access insights from data without knowledge of programming or query languages, and developments in artificial intelligence (AI) promise to accelerate this trend. Further technological advances in the areas of data management and analytics and, in particular, the continuing trend towards providing software in the cloud are also driving development.

Literature Review

Cody et al. (2015) have highlighted in the research paper that knowledge management and business intelligence technologies have provided good return on investment to the customers. The authors have highlighted that the two technologies will blend over a period of time to provide solutions to the problems requiring both data and text analytics. The authors have discussed two tools classifier and sapient developed by IBM for text analytics and a framework for integrating text into the data warehouse and stated that text integrated with business data helps in improving the quality of decision.

Ortiz Jr. (2017) has highlighted new trends of BI tools in his article. The author has mentioned due to high-speed processing and networking technologies increasing amount of data are getting to generate at faster rate, along with typical data generation 22 enterprise resource planning and human resource applications, due to internet-based applications. The author has highlighted that the financial

services, communications, and manufacturing industries are the biggest users of business intelligence technology as depicted in figure 6 due to emergence of new trends such as real-time BI, web-based BI and making BI easier to use. Abukari and Jog (2019) have highlighted in their study that BI is robust & strategic initiative by management and the smart managers can generate increased value for investors by deploying BI tool in their organizations. The authors have described BI as a decision support system which uses a fact-based approach to management decision-making and enables sustainable competitive advantage for the organization.

Negash (2015) in his research paper has discussed the concept of BI tool and has provided framework for using structured and semi-structured data to support informed action by decision-makers as depicted in figure 7. The author has discussed the architecture for structured and semi-structured BI tool. The author has also highlighted that market for BI is growing and vendors for structured data based BI tool are mature in comparison to semi structured data based BI tool. The author highlighted that the use of semi-structured data in decision-making process is increasing. The author has also provided various areas to be covered for further research such as managing semi-structured information, real-time BI etc. The article is conceptual in nature and is useful for students, academicians for their study.

According to Graves (2020) BI tool plays a strategic role in achieving regulatory compliance in faster and easier manner in the legal (law firms), financial industry and government agencies. The author has highlighted that a BI tool can help companies overcome hurdles related to gathering, analyzing, presenting and storing information. The insightful information helps management take effective decision by quickly visualizing the answers for business queries on corporate data. The author has discussed various features of BI tool but has not provided the full usage/functionality details of BI tool in legal, financial and government agencies. The research paper has highlighted that still there are organizations that have not implemented the BI tool.

Business Intelligence Applications for Business Organizations

Although business intelligence, analytics and machine learning (ML) are often mentioned in the same breath, it is important to understand the differences and specific functions of each area. This separation of terms is crucial in order to be able to use the respective technologies and methods effectively in a business context.

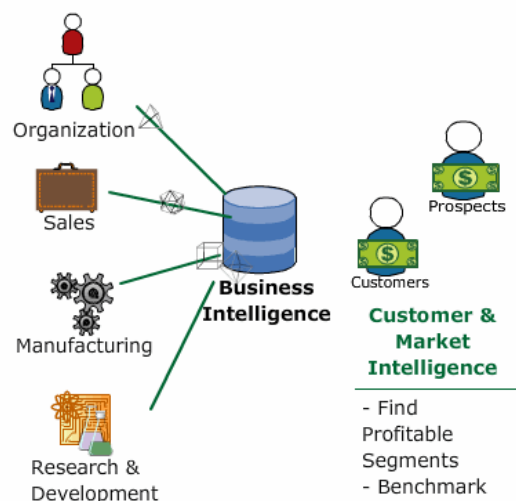
- **Business Intelligence** focuses primarily on the collection, integration and visual preparation of data. BI systems are used to provide current, historical and predictive views of business processes. They are primarily responsible for reporting, online analytical processing (OLAP), analytics and dashboards. The focus is on understanding the data and deriving insights that are relevant for business decisions.
- **Analytics** goes one step further and includes more advanced statistical analyses. Analytics uses data, statistical algorithms and machine learning methods to identify patterns and correlations in large amounts of data that can be useful for future decisions and forecasts.
- **Machine learning**, a branch of artificial intelligence, is often used in conjunction with BI to enable automated, data-driven decisions. It allows systems to learn from data and improve themselves without explicit programming. In the context of BI, machine learning can help to identify patterns in data and provide more precise forecasts.

The differences and overlaps between these areas are clearly highlighted which cover different technology areas. These assessments provide valuable insights into the respective strengths and application areas of BI, analytics and machine learning, which helps companies to use the respective technologies effectively for their specific needs.

When business intelligence is critical to the success of the organization, acquiring the right business intelligence application is paramount. This may need an application that delivers information

quickly and accurately. It needs a business intelligence utility that will build on the substantial investment which have already made in information architecture. Most of all may need a business intelligence application that will integrate information into the daily workflow of the users. BI solutions need to be comprehensive, secure, integrated with operational systems, and available all day, every day. Microsoft Business Intelligence can help the organizations make better, more relevant decisions faster. Analytic applications provide greater business insight by proactively guiding users to make the most informed decisions.

Fig.2 BI applications in Business Organizations



Oracle's analytic applications include capabilities such as corporate performance management, interactive dash boarding, and embedded analytic capabilities for delivering insight pervasively across the enterprise. Open, pre-built, industry specific analytic applications provide actionable intelligence for each business function and user role. These solutions are hot pluggable into the existing operational systems, meaning that can infuse enhanced intelligence capabilities into the Oracle, custom, and third-party applications. All Business Analytics applications share a modular design and are integrated across application areas, enabling organizations to start in one area such as sales or finance and add analytic applications to support other functions as business needs demand. Organizations implementing multiple applications benefit from features such as common, conformed dimensions, thereby enabling insight into complex

cross-departmental relationships and business issues.

The following list shows the analytic application families and some sample business benefits:

Sales Analytics

- Improve pipeline visibility and forecast accuracy
- Make optimal product offer to each customer
- Increase revenue through better lead tracking and management

Marketing Analytics

- Identify high-potential customer segments or groups
- Identify products/offers most likely to appeal to different customer segments
- Get real-time visibility into campaign results and ROI

Financial Analytics

- Receive intra-period information on financial statement condition without having to perform consolidations or wait for books to close
- Drive financial accountability to department managers to help better control costs and increase revenue
- Increase cash flow and working capital through more effective receivables, payables, and inventory management

Supply Chain and Supplier Analytics

- Gain insight into supplier sourcing to drive cost reductions, increase efficiency, and extend competitive advantage
- Use supplier performance insights for expenses to ensure lowest cost, best quality, and timely delivery of materials
- View inventory levels and velocities at any storage location to maintain product availability and minimize invested working capital

HR / Workforce Analytics

- Understand key factors that drive employee productivity and leverage insight to increase organizational performance
- Properly deploy and measure performance of workforce, matching geographic, job, and diversity profiles with business requirements
- Increase retention levels, reduce hiring and recruitment costs, and reduce time required to produce statutory reports

Intuitive and role-based, these solutions transform and integrate data from a range of enterprise sources, including Siebel, Oracle, People Soft, SAP, and corporate data warehouses into actionable insight that enables more effective actions, decisions, and processes.

Business Intelligence System for Business Decision Making

One of the biggest competitive advantages for a person or a firm to have is the capacity to make timely judgments with consistently good results, hence it is critical to look at decision-making processes and how to improve decision quality. When used properly, it can make it possible to capture the greatest value possible in complicated and uncertain situations. Many firms struggle with making strategic decisions in a fast-paced business environment, high-quality efficient and effective decision-making typically leads to better levels of organizational skills and can be viewed as a crucial competitive advantage. Management entails making decisions on how to organize and run a firm in all its forms.

The quality of the decisions made by organization managers can determine whether an organization succeeds or fails. As a result, the effectiveness of decision-making inside an organization is crucial. The efficacy and success of an organization are significantly influenced by the caliber of its strategic decision-making. Therefore, management must provide the instruments that help improve the decision-making process within their firm's additional attention and effort.

Data and information are closely intertwined. Data representation of pertinent facts is referred to as having high data quality. In the context of business intelligence (BI), the distinction between data (quality) and information (quality) is particularly clear. To convey complicated and competitive internal information to decision-makers, BI combines knowledge management, data collection, and storage with analytical tools. Providing high-quality information for managerial decision-making is the primary goal of BI. According to the hierarchical link between data and information suggests that data quality is an antecedent or prerequisite, but not a guarantee, of information quality.

This illustrates how high-quality data can be used to obtain quality information. If data are appropriate for use in operational operations, decision-making, and planning, they can be viewed as having good quality. Both internal and external company data are transformed into information that can assist businesses in achieving objectives, opportunities, and corporate position. As a result, high-quality data can be used to obtain quality information. As a result, data play a crucial role in the installation of BIS.

Data visualization, which can offer a distinctive and effective way to convey the information, is a summary of the data presented in graphical forms as diagrams, charts, curves, etc. By looking at the dashboard, the manager will gain an understanding of the situation inside the company. The management made the decision as a result of the information displayed on a dashboard or in another way. Only a well-designed dashboard customized to the user's demands can assist the management in strategic making decisions with acceptable outcomes. strategic Decision-makers can track the main performance indicators of the company by using data visualization, which allows users to build graphs, charts, widgets, and ad hoc reports.

The effectiveness and efficiency of the business decision-making process are related to decision quality. Top management's enforcement of rules that prioritize the use of information in strategic decision-making will be a sign of higher organizational capacities. BIS has the power to raise the standard of the information used in strategic decision-making. BIS provides the

required assistance for processing data and making the right strategic decisions, but decision quality may be constrained if businesses are unable to apply BIS at the proper level. According to, the study of strategic decision quality in the context of BIS will contribute to closing the knowledge gap. By fostering and improving the quality of strategic decision-making within the firms, the use of BIS can be useful.

In order to support and enhance business decision-making across a wide range of business activities, BIS provides the capability to evaluate business information. BIS aids in the development of insights and offers managers important data and information that enhances the caliber of their strategic choices. According to, BIS possesses in-depth knowledge of the critical factors for high-quality strategic business decisions. Additionally, it speeds up decision-making, which leads to performance that is superior in the marketplace. There are numerous examples of firms that successfully implemented BIS and saw improvements in their strategic decision-making and decision-making quality. Nevertheless, gauging BIS performance is difficult. "The number and quality of decisions made as a result of insights generated via the BIS tool" is one of the measures companies employ. Making business decisions is essential to the success of any firm. Organizations that are engaged in the strategic decision-making process must consider each component's unique strengths while ensuring adequate integration and balance among them. Strategic decision-making of the highest caliber will produce decisions of the highest caliber for the entire organization. In order to better comprehend this link and the extent of its impact on business decision-making, it is crucial to research and assess the quality element of BIS's impact on business decision-making.

Conclusion:

Business intelligence systems have recently emerged as a result of recent breakthroughs in MIS and technology. In order to allow consumers to act immediately on insights, BI works to collect data and translate it into trends and visuals. As a result, BI is seen as a unique class of information technology (IT) capabilities that are tied to a company's capacity to offer decision-makers high-quality information. Organizations are urged to

collect, comprehend, and use data to assist decision-making and enhance business operations because managers must have the appropriate information at the appropriate time and location). At the same time, there is continuous pressure from management to justify the contribution of BI. Any business could benefit from improved decision-making through the use of BI. Because it gives knowledge workers the chance to have real-time access to the information and analyze it effectively and intuitively, BI also offers the organization high-quality information that is essential in the decision-making process.

References

- Balasubramanian V (1994), "Hypermedia: An Applications Perspective", *The X Journal* (May-June Issue), pp.52-58.
- Chung, W., Chen, H., & Nunamaker, J. F., Jr. (2005). A Visual Framework for Knowledge Discovery on the Web: An empirical study of business intelligence exploration. *Journal of Management Information Systems*, 21(4), 57–84.
- Djerdjouri, M. (2020). Data and Business Intelligence Systems for Competitive Advantage: prospects, challenges, and realworld applications. *Mercados y Negocios*(41), 5-18.
- Drucker, P.F. (1994), "*The Theory of Business*," *Harvard Business Review*, pp. 95-104
- Eisenhardt, K. M. (1999). Strategy as strategic decision making. *MIT Sloan Management Review*, 40(3), 65.
- Gauzelin, S., & Bentz, H. (2017). An examination of the impact of business intelligence systems on organizational decision making and performance: The case of France. *Journal of Intelligence Studies in Business*, 7(2).
- Gessner, G. H. & Volonino, L. (2005). Quick Response Improves Return on Business Intelligence Investments. *Information Systems Management*, 22(3), 66–74.
- Goodwin, Candice. "Technology: Business Intelligence – Assault on the data mountain." Proquest. Accountancy, (May 7, 2003).
- H.J. Watson and B.H. Wixom (2007), "The Current State of Business Intelligence", *Computer Volume* 40 Issue 9, September 2007
- Khder, M. A., & Abu-AlSondos, I. (2021). Business intelligence and data mining: Opportunities and future. *European Journal of Business and Management*, 13(11).
- Negash, S, (2004), "Business Intelligence", *Communications of the Association of Information Systems*, vol. 13, pp. 177-195.
- Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. (2021). Organizational business intelligence and decision making using big data analytics. *Information Processing & Management*, 58(6), 102725.
- Overby, E., Bharadwaj, A., & Sambamurthy, V. (2006). Enterprise Agility and the Enabling Role of Information Technology. *European Journal of Information Systems*, 15(2), 120–131.
- Padmanabhan, B. & Tuzhilin, A. (2003). On the Use of Optimization for Data Mining: Theoretical interactions and eCRM opportunities. *Management Science*, 49(10), 1327–1343.
- Rikhardsson, P., & Yigitbasiglu, O. (2018). Business intelligence & analytics in management accounting research: Status and future focus. *International Journal of Accounting Information Systems*, 29, 37-58.
- Santosh Ranganath N., (2012), "Business Intelligence: An Assessment for Corporate Performance Management", *KIMR Management Journal*, Pune, Vol. 2, No. 1, pp. 15-22.
- Santosh Ranganath N., Tulasi Rao G., (2011), "Knowledge Management in Organizations – A Business Intelligence Technique", *Rai Management Journal*, New Delhi, Vol.VIII Issue II, December, pp. 139-147.
- Sharda, R., Delen, D., Turban, E., Aronson, J., & Liang, T. (2014). Business intelligence and analytics. *System for Decesion Support*, 398, 2014.
- Visinescu, L. L., Jones, M. C., & Sidorova, A. (2017). Improving decision quality: the role of business intelligence. *Journal of Computer Information Systems*, 57(1), 58-66.
- Wieder, B., & Ossimitz, M.-L. (2015). The impact of Business Intelligence on the quality of decision making—a mediation model. *Procedia Computer Science*, 64, 1163-1171.
- Zack Jourdan, R. Kelly Rainer & Thomas E. Marshall (2008): Business Intelligence: An Analysis of the Literature, *Information Systems Management*, 25:2, 121-131