

## Business Intelligence: A Review Study of Literature

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### Abstract

Business intelligence is a technology, techniques, tools that brings many advantages for the businesses with improvement in performance and process that adopts it. In today's rapidly changing and challenging business environment, it becomes vital for an organization to use and access the knowledge and information. Information plays a key role in decision making in business arena. Business intelligence is a technological concept for tools techniques, methods and solutions that helps management to understand and analyse the business environment, hence business intelligence leads to the needs of organization. BI supports knowledge and information in a decisional way. In the present article recent researches, literature and paper of journals in this field is reviewed thoroughly and systematically to know the recent research, concepts, definitions, approaches and knowledgeable information about the business intelligence.

**Keywords:** Business intelligence (BI), Review Study, BI approaches

### 1. Introduction: Business intelligence

Business Intelligence (BI) is a "set of techniques and tools which transforms raw data into meaningful information which is used for the purpose of making business decisions." BI is a technology infrastructure for gaining maximum information from available data for the purpose of improving and optimising business processes and implementing strategic decisions in the organisations.

In a 1958, IBM researcher Hans Peter Luhn used the term business intelligence. He defines business intelligence as "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal." In 1989, Howard Dresner proposed "business intelligence" as an umbrella term to describe "concepts and methods to improve business decision business intelligence as "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal."

Stackowiak define business intelligence as the process of taking large amounts of data, analysing that data, and presenting a high-level set of reports that condense the essence of that data into the basis of business actions, enabling management to make fundamental daily business decisions. Zeng define BI as "The process of

collection, treatment and diffusion of information that has an objective, the reduction of uncertainty in the making of all strategic decisions.”

## 2. Research Methodology:

Data collected in regard to Definition, concepts, methods and approaches related to business intelligence in order to analyse and manage the information to help the organization in decision making and enhance efficiency. Secondary data is used in the review study. The data has been collected through research papers, article, internet, journals, and other sources.

## 3. Business intelligence: Concepts, Findings and approaches

Business intelligence (BI) is a technology and methodological driven process for processing and analysing raw data and presenting actionable information to help management, corporate executives, business managers and other end users make more informed business decisions.

	Concepts/Findings/approaches	Researcher/year
1	The approach to deal with different aspects of economics of information and proposed the private and social value of information. Hence that information is considered to be classic and social usefulness.	Jack H (1971)
2	An approach in the business intelligence area which focuses on the role of BI is to track and manage customer transactions in real time mode in order to track the time required to make customer the offer they are likely to accept, to increase the products they buy or to retain them as customer of the product. BI systems driven by changes in customer behaviour has been an important element in the IT.	Gessner & Linda (2005)
3	An approach to the management of transferring internal messages in the enterprise environment, Business intelligence provides users best possible assistance in the process of decision making. Apart from providing some tools such as production reporting tools, end user query and reporting tool data mining tool, dashboards/scorecard tools modelling and planning tools. It also provides the right information to right person during the right time so that the decision making process can be improved with in stipulated time	Wayne, 2005; Back 2002
4	Focussed on competitive intelligence (CI), also known as business intelligence, which is both a process and a product. As a process, CI is the set of legal and ethical methods a company uses to harness information that helps it achieve success in a global environment. As a product, CI is information about competitors' activities from public and private sources, and its scope is the	Vedder, Vanecek, Guynes & Cappel

	present and future behaviour of competitors, suppliers, customers, technologies, acquisitions, markets, products and services, and the general business environment.	(1999)
5	As per the approach by Gartner which focuses on the financial and business performances impact on the projects by using Business intelligence systems. BI as their highest rating technology issue as they focus on projects that enable users to positively affect financial and business performance of the organization. According to the opinions voiced by the Gartner Group, enterprises use BI systems mainly for corporate management, optimisation of customer relations, monitoring of business activities, reporting planning and decision making support on all levels of management. Gartner has proposed opinions voiced on BAM According to them at least 60% of BAM solutions will be supplied as functionality built into Enterprise, infrastructure and applications.	Gartner Group (2007)
6	Describes the business intelligence in technical and managerial views. It describes technical view of BI as usually centres on the process of, or applications and technologies for, gathering, storing, analysing and providing access to data to help make better business decisions. Managerial view of business intelligence (BI) is the right information to the right person at the right time so they can make decisions that improve organization performance.	Ranjit Bose (2009)
7	Business intelligence seen to be response to access to relevant information through intensive use of information technology (IT). The core of BI includes gathering, analysis and distribution and to support the strategic decision-making process in the organization. Strategic decisions means decisions related to implementation and evaluation of organizational mission, vision, goals and objectives which are supposed to have medium to long term impacts on the organization as opposite to operational decisions which are day to day in nature.	Petrini & pozzebon (2008)
8	An approach on BI methodologies focusing on identification of strategic information which needs to be integrated into data warehouses and business intelligence (BI) applications in the organization which is helpful for organizations to take better business decisions. The integration of data warehouses and BI applications plays an vital role in handling and flow of information in the organization.	Miranda (2004)
9	BI is the methodical transformation of data from any and all data sources into new forms to provide information that is business-driven and result oriented , transform from an environment that is reactive to data to proactive, automate and integrate as many steps and functions as possible in business, analysis and integrate powerful capabilities in business events	Ranjan (2008)

10	BI is a mixture of tools, databases, applications and vendors in order to deliver an infrastructure that not only will deliver the initial solution, but also will incorporate the ability to change with the business and current marketplace term that encompasses a broad range of analytical software and solutions for gathering, consolidating, analysing and providing access to information in a way that is supposed to let enterprise users make better business decisions.	Sahay & ranjan (2008)
11	Provides that information plays two crucial roles which first roles refer to the physical state of the world that can indicate the quality of goods one considers acquitting. Another role of information is about ones' potential competitor including their numbers, references and information which they could in turn process indicates the degree of competition.	Richard et al. (1983)
12	Points out BI benefits that facilitate the connections in the new form organizations, bringing real-time information to centralized repositories and support analytics that can be exploited at horizontal and vertical level within and outside of the organizations	Malhotra (2000)
13	Study an Empirical Investigation of the Factors Affecting Data Warehousing Success in the business intelligence arena. Data warehousing has unique characteristics that may impact the importance of factors that apply to it. A cross-sectional survey investigated a model of data warehousing success. It was found that management support and resources help to address organizational issues that arise during warehouse implementations; resources, user participation, and highly-skilled project team members increase the likelihood that warehousing projects will finish on-time, on-budget, with the right functionality; and diverse, unstandardized source systems and poor development technology will increase the technical issues in project.	Wixom and Watson (2001)
14	Examines several critical activities related to value chain. Without effective BI to target process-oriented organization for supporting.	Denison (1997)
15	Describes various issues on re-engineering business process innovations.	Davenport (1993)
16	Identified Small and Medium enterprises Specific determinants of Business Intelligence Systems adoption at organization level that will guide the development and testing of a BIS adoption framework in the SMEs. The determinants are classified in three contexts i e Technological context, organizational context and environmental context.	B. Puklavec (2014)
17	Study examines the role of the decision environment in how well business intelligence (BI) capabilities are leveraged to achieve BI	ÖYkü IşıK, Mary C.

	success. They examine the decision environment in terms of the types of decisions made and the information processing needs of the organization. Findings suggest that technological capabilities such as data quality, user access and the integration of BI with other systems are necessary for BI success, regardless of the decision environment.	Jones,Anna Sidorova (2013)
18	Risk management is a major support in Business intelligence as it helps in decision making where the conditions are tends to be uncertain when all the factors are unknown.	Harding w (2003)
19	BI systems have the potential to maximize the use of information by improving the company's capacity to structure a large volume of information and make it accessible, thereby creating competitive advantage, what davenport calls" competing on analytics".	Davenport (2006)
20	According to them not all of BI solutions succeed in all organizations, and, there are signs, before a project begins, that could indicate whether the project will succeed, struggle, or fail and it is essential that organizations are aware of the key indicators of success in adopting BI, so as to overcome the challenges or risks that are associated with the BI project during its implementation.	Alaskar and Efthimios (2015),
21	Study the use of BI in the HRM area. Organizations using a business intelligence technology are now able to develop intelligence based information systems to gain more knowledgeable information and make faster and more reliable business decisions. Many organizations are using BI in many business arenas but they don't have taken the benefits of BI in Human resource management.	Bhushan kapoor, (2010)
22	Study in the context of Semantic Web development trend is to integrate semantic unstructured data, making business intelligence solutions to be redesigned in such a manner that can analyse, process and synthesize, in addition to traditional data and data integrated with semantic another form and structure. This invariably leads appearance of new BI solution, called Semantic Business Intelligence. An approach to rationalize business performance through dimensional modelling by utilizing an information flow model that involves the specification of activity dimensions during business process modelling.	Airinei, Dinu, Berta, Dora-Anca (2012)
23	Implementation and Benefits of Real-Time Business Intelligence. The study confirmed that RTBI is likely to require major changes to technical architecture, which may involve acquisition of new tools and technologies. Several issues and requirements at the business level also need to be addressed.	Dobrev, Kiril, Hart and Mike, (2014)
	Study the characteristic of in memory Business Intelligence. BI has developed over the years and the most businesses need to take	

24	it to the next level of maturity and improvement can be enabled by SAP HANA. In-memory Business Intelligence is powerful than data warehouse and Online Analytical Processing projects.	Ivan and Mihaela-Laura, (2014)
25	Study Business intelligence rationalization of practical RTBI applications and analytics that were being applied across industries.	Kaula Rajeev (2015)
26	The idea of BI is about extracting information within organization by using mathematical & methodologies models for analysis and using that information for making the decisions which is under uncertainty so the organisation must invest an amount of budget in the process of collecting data, transforming data and presenting the meaningful data or information to related department to make right decision.	Rajnoha et al (2016)
27	Use a literature review to provide a comprehensive overview of the current understanding and applications of Collaborative Business Intelligence (CBI). They identify three main areas of the CBI research: internal communication, data storage with partner.	Kaufmann and Chamoni 2014
28	Focused on Latest market trends in BI systems implementation by comparing Agile method with traditional methods. It studies prove that Agile methods might be more effective in BI projects from an end-user perspective and give first results and added value in a much shorter time compared to a traditional approach.	Jerzy Kisielnicki Anna Maria Misiak (2016)
29	Reviews the literature of progress in Business Intelligence (BI) system analysis. On the aspect of Bi that facilitate retailers establish to their best vendors.	Dr Pranav Patil (2016)
30	Focused on RABIC, the integrated reference architecture for business intelligence in the cloud, in order to improvement by supporting the Standardization, increase the transparency and abolish the skepticism.	Oliver Norkus and Jurgen Sauer (2016)
31	Describes Simulation of knowledge sharing key variables in community. Key variables used in a Business Intelligence Simulation Model (BISiM) are willingness to share or gain knowledge, ability to share or gain knowledge, and complexity or transferability of the shared knowledge.	Pornpit Wongthongtham ,Behrang Zadjabbari Hassan M N (2016)
32	Performed the review of research and practical sources to examine driving forces of BI data-driven approaches, BI agility, maturity and acceptance to point out culture-related issues that support BI adoption and to suggest an emerging set of factors	Skyrius, R., Katin, I., Kazimianec , M.,

	influencing BI culture.	Nemitko, S., Rumsas, G., & Zilinskas, R (2016).
33	Examines various big-data techniques and technologies and provides a comprehensive comparison between various Business Intelligence tools currently in the market.	L Atriwal, P Nagar, Sandeep Tayal and V Gupta (2016)
34	The concepts of BI in Customer Relationship Management (CRM) and its benefits and understand successful implementation of BI in retailing.	Dr. Rashmi Gujrati (2016)

#### 4. Researcher review

After studying and analysing the various literature and research papers leads to the conclusion that various approaches has been used by the researcher this contributes to the knowledge area in the business intelligence. Approaches includes as managerial and technical. Technical and managerial approach has been used to evaluate the BI areas in order to create informational environment for the organization. Managerial approach describes the importance of information for the purpose of decision making in the organization whereas technical approach leads to development of tools and platforms to support managerial approach and technological development to integrate other technologies with the BI to make it more functional and operational.

#### 5. Conclusion

Business intelligence is a technological as well as managerial concept which includes various techniques, tools and technologies that provides processing capability of data to the organizations. BI helps the organization in gathering analysing and accessing the data which provides comprehensive knowledge and information to the organization. The final goal of the business intelligence technologies is to provide wide range of advantage to the organization by making effective and efficient optimal business decisions at all organizational levels which impacts overall performance and management of the organization.



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