

## **Business Intelligence And E-banking: A Study Of Bi Importance In Banking Sector**

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### **Abstract**

Business intelligence (BI) is used to analyzing business data. The main idea in BI is to support flow of business information around and within the organization by identifying and processing the information into useful managerial knowledge and intelligence. BI can be used by banks for analyzing performance budgeting, historical trends, performance analytics, employee performance measurement etc. In this paper authors have tried to emphasize on the importance of BI in E-banking arena and also tries to find out problems that banks have encountered while implementing BI in their banking systems.

**Keywords:** Business Intelligence(BI), E-banking, CRM,

### **Introduction**

In today's rapidly changing business environment, the need for very timely and effective business information is recognized as being indispensable for organisations not only to succeed, but even to survive. Business intelligence (BI) is a concept which refers to a managerial philosophy and a tool that is used in order to help organisations to manage and refine information and to make more effective business decisions. In a 1958 article, IBM researcher Hans Peter Luhn used the term business intelligence. He defined intelligence as: "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal." Business intelligence as it is understood today is said to have evolved from the decision support systems which began in the 1960s and developed throughout the mid-80s.

Business intelligence (BI) is a computer based technique used in spotting, digging-out, and analyzing business data, such as sales revenue by products and/or departments, or by associated costs and incomes. "Business Intelligence is a set of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information used to enable more effective strategic, tactical, and operational insights and decision-making.

The main idea in BI is to aid in controlling the vast stocks and flow of business information around and within the organization by first identifying and then processing the information into condensed and useful managerial knowledge and intelligence. Organizations have 'collected information about their competitors since the dawn of capitalism. Business intelligence aims to

support better business decision-making. Thus a BI system can be called a decision support system (DSS). BI uses technologies, processes, and applications to analyze mostly internal, structured data and business processes while competitive intelligence gathers, analyzes and disseminates information with a topical focus on company competitors. Business Intelligence can be applied to the following business purposes (Table 1).

**Table 1: Business purposes**

<b>Measurement</b>	Program that creates a hierarchy of Performance metrics and Benchmarking that informs top management about progress towards business goals
<b>Analytics</b>	Program that builds quantitative processes for a business to arrive at optimal decisions and to perform Business Knowledge Discovery.
<b>Reporting/Enterprise Reporting</b>	Program that builds infrastructure for Strategic Reporting to serve the Strategic management of a business, NOT Operational Reporting.
<b>Collaboration /Collaboration platform</b>	Program that gets different areas (both inside and outside the business) to work together through Data sharing and Electronic Data Interchange.
<b>Knowledge Management</b>	Program to make the company data driven through strategies and practices to identify, create, represent, distribute, and enable adoption of insights and experiences that are true business knowledge.

Business intelligence also includes technologies such as data integration, data quality, data warehousing, master data management, text and content analytics, and many others. Actually, the term BI is dualistic i.e. it refers to the relevant information and knowledge describing the business environment, the organization itself and its own situation in relation to its markets, customers, competitors and economic issues and the process that produces the intelligence described. The information technology used in analyzing the data and storing and reporting the intelligence is also considered an important part of BI [12].

### **Benefits of business intelligence**

A wide range of the benefits for an organization emerges from the basic principles of BI. [8] carried out a study among the large Finnish companies to find out the benefits gained from BI. The most significant benefits provided by BI activities were:

- better quality information acquired for decision-making (95%),
- improved ability to anticipate earlier the possible threats and opportunities (83%),
- increase of sharing information (73%),

- improved efficiency (65%),
- easier information acquisition and analysis (57%), and
- faster decision-making (52%).

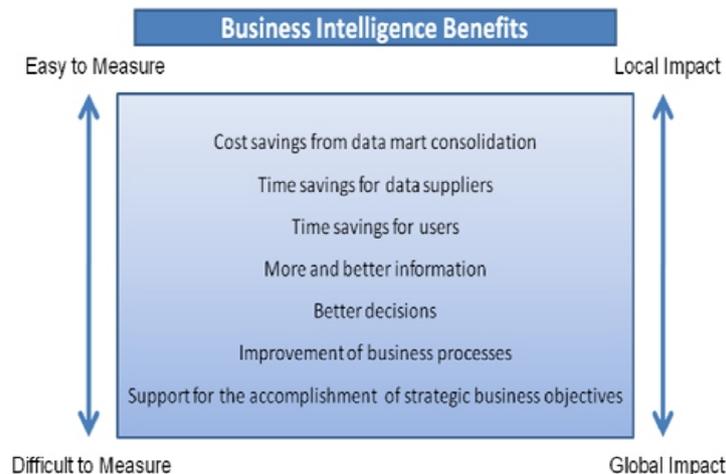
Time-savings (30%) and cost-savings (14%) were not considered particularly important. The researchers also asked the interviewees to name one factor to describe the most significant benefit of their BI activities. The following benefits were considered to be important:

- broadening understanding of business in general,
- strengthening strategic planning,
- increasing professionalism in acquisition and analysis of information, and
- Understanding the meaning of information [8].

The major benefits of BI, as presented by [15], on the basis of the results of the survey, are:

- faster, more accurate reporting (81%),
- improved decision making (78%),
- improved customer service (56%),
- increased revenue (49%).

Many of the benefits of BI are intangible. [16] present tangible benefits as well as those that are difficult to measure. For example, companies may eliminate software and hardware licences and fees when they consolidate and retire data marts, or companies may reduce headcount when they replace manual reporting processes. Other benefits, such as the enabling of new ways of doing business, are much more difficult to quantify, but may generate a competitive advantage or open up new markets for the company. A wide range of possible benefits resulting from BI is presented in Figure 1. The most tangible and easy-to-measure benefits have more of a local impact, typically happening at the departmental level. The more intangible benefits such as process improvement and strategic enablement can have impacts across an organization [14].



**Figure 1: Benefits of business intelligence [14]**

## 2. Literature Review

The BI terminology in recent years has been confusing. There are different interpretations of BI and many terms applied to it (e.g. competitive intelligence, market intelligence, customer intelligence, competitor intelligence and strategic intelligence). The use of these terms is haphazard both in academia and the business world. BI technologies provide historical, current, and futuristic views of business operations. The common functions of business intelligence technologies are reporting, online analytical processing, analytics, data mining, business performance management, benchmarking, text mining, and predictive analytics.

BI can produce many benefits if it is implemented well. Some literature argues that IT projects, in general, are most often unsuccessful in being on-time, being on-budget and/or delivering the expected benefits [4, 1 and 10]. [5] state that according to the EMC Corporation, many BI initiatives have failed not only because tools were not accessible to end users but also because the end users' needs were not met effectively. BI is a wide term that is commonly used for technologies, applications, tools and processes to gather, store, access and analyse data for better decision-making. The literature review on BI has been published by [4].

According to the Gartner Group surveys [5], BI is implemented in almost 80% of companies in the U.S.A. and in 50% of companies in Europe. Slovak companies have used these systems only in recent years. The next growth of BI is evident, as according to the Gartner group press release [10] from the Gartner Business Intelligence Summit, the BI, analytics and performance management software market was the second-fastest growing sector in the overall worldwide enterprise software market in 2011.

According to [16], BI is “a broad category of technologies, applications, and processes for gathering, storing, accessing, and analyzing data to help its users make better decisions.” It includes both getting data in (to a data mart or warehouse) and getting data out (through technologies or applications that meet some kind of business purpose). [16] underline the processes as an important part of BI, e.g., processes for extracting, loading and storing data, maintaining metadata for IT and users, and prioritizing BI projects. Some of these processes are the responsibility of the BI staff, while others are the joint responsibility of BI staff and business units.

BI, developed primarily as a system to solve analytical tasks, is generally considered to be a way of better decision-making, reducing costs and improving the quality of processes and performance. However, there are different definitions of BI. [11] used the term BI the first time in his article. He defined intelligence as “the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal.” The term BI has become popular thanks to Howard J. Dresner, a Gartner Group analyst. He described the term BI as “a set of concepts and methods to improve business decision making by using fact-based support systems” in 1989, and this usage has become widespread [13]. This concept highlights the importance of data analysis, reports and query tools that provide users with data, and help them to synthesize valuable and useful information.

Further, [7] underline the decision-making process, as BI provides corporate decision-makers with software solutions that help them identify and understand the key business factors in making the best decisions for the situation at the time. “In general, business intelligence systems are data-driven DSS” [12]. [4] define BI as “a combination of processes, policies, culture, and technologies for gathering, manipulating, storing, and analyzing data collected from internal and external sources, in order to communicate information, create knowledge, and inform decision making. BI helps report business performance, uncover new business opportunities, and make better business decisions regarding competitors, suppliers, customers, financial issues, strategic issues, products and services.”

The BI systems enable getting new information and knowledge useful to achieve a competitive advantage for any company with the use of efficient analytical components (reporting, OLAP technologies, and data mining). There is a general concept of BI solution architecture that contains several layers with subsistent components. Two of the most significant components of BI are data warehouse and data marts [9]. At the present time, DW is a central component of data storing in a company's information system. “The data warehouse supports the physical propagation of data by handling the numerous enterprise records for integration, cleansing, aggregation and query tasks. It can also contain the operational data which can be defined as an updateable set of integrated data used for enterprise wide tactical decision making of a particular subject area” [14]. Data marts can be defined in different ways. According [9], a data mart is “a collection of subject areas organized for decision support based on the needs of a given department.”

### **Role and Importance of BI in banking sector**

A new era of banking, termed “e-banking” or “Internet banking” has emerged, where customers can perform their financial transactions electronically over the internet through their personal computer or laptop at a time convenient to them, without having to be restricted to regular branch operating hours. Furthermore, customer is expected to perform at least one of the following transactions online, namely viewing account balance and transaction histories, paying bills, transferring funds between accounts, ordering cheques, managing investments and stock trading. As the banks grew in size and expanded geographically the number of branch network grew leaps and bounds and so the, the volume of transactions became quite large and manual operations became time consuming and error prone. To cater the load of operations from all bank branches spread across geographies the banks have started using computers and slowly banks have become fully automated. Slowly, majority of the banks began using information technology for MIS.

Business Intelligence tools can be used by banks for historical analysis, performance budgeting, business performance analytics, employee performance measurement, executive dashboards, marketing and sales automation, product innovation, customer profitability, regulatory compliance and risk management. Examples of these applications include historical analysis where banks can analyze their historical performance over time to be able to plan for the future. The key performance indicators include deposits, credit, profit, income, expenses; number of accounts, branches, employees etc. Absolute figures and growth rates are required for this

analysis. In addition to time dimension, which requires a granularity of years, half year, quarter, month and week; other critical dimensions are those of control structure (zones, regions, branches), geography (countries, states, districts, towns), area (rural, semi-urban, urban, metro), and products (time, savings, current, loan, overdrafts, cash credit). Income could be broken down in interest, treasury, and other income; while various break-ups for expenses are also possible. Other possible dimensions are customer types or segments. Analyzing, interpreting and acting upon on the information is a subjective exercise. Hence, the BI vendor shifted their focus to customer relationship management (CRM). CRM continues to be the centre of the attraction to banks today and risk management comes to second.

### **Customer Relationship Management (CRM)**

CRM is at the centre stage of BI in banking. However, it is becoming difficult to assess whether it is driven by technology or business. Traditional or conservative banking business models of Indian banking industry relied heavily on personal relationships that the bankers of yesteryears had with their customers. The idea of CRM is that it helps businesses use technology and human resources gain insight into the behavior of customers and the value of those customers. If it works as hoped, a business can: provide better customer service, make call centers more efficient, cross sell products more effectively, help sales staff close deals faster, simplify marketing and sales processes, discover new customers, and increase customer revenues. It doesn't happen by simply buying software and installing it. For CRM to be truly effective an organization must first decide what kind of customer information it is looking for and it must decide what it intends to do with that information. For example, many financial institutions keep track of customers' life stages in order to market appropriate banking products like mortgages or IRAs to them at the right time to fit their needs. Next, the organization must look into all of the different ways information about customers comes into a business, where and how this data is stored and how it is currently used. Company analysts can then comb through the data to obtain a holistic view of each customer and pinpoint areas where better services are needed. A CRM helps a bank with the following:

- Find customers
- Get to know them
- Communicate with them
- Ensure they get what they want (not what the bank offers)
- Retain them regardless of profitability
- Make them profitable through cross-sell and up-sell
- Covert them into influencers
- Strive continuously to increase their lifetime value for the bank.

The most crucial and daunting task before banks is to create an enterprise wide repository with 'clean' data of the existing customers. It is well established that the cost of acquiring a new customer is far greater than in retaining an existing one. Shifting the focus of the information from accounts tied to a branch, to unique customer identities requires a massive onetime effort. The task involves creating a unique customer identification number and removing the duplicates across products and branches. Technology can help here but only in a limited way. The transition from a

product-oriented business model to a customer-oriented one is not an easy task for the banking industry. This is true in case of all the banks of all the banks, Indian or otherwise.

### **Operational Business Intelligence**

Operational BI embeds analytical processes with the operational business structure to support near real-time decision making and collaboration. This characteristic fundamentally changes the way how data is used, where it exists and how it is accessed. Thus 'Operational BI merges analytical and operational processes into a unified whole'. This change is rapidly exposing the limitations of traditional analytical tools. Operational BI helps businesses make more informed decisions and take effective action in their daily business operations. It can be valuable in many areas of the business, including reducing fraud, decreasing loan processing times, and optimizing pricing. Operational BI delivers information and insights to those managers that are involved in operational or transactional processes. Not all operational BI systems need to be near real-time. Reducing action times to close to zero are beneficial only in specific types of business requirements such as the fraud example. In fact, operational BI can be classified into being demand-driven and event-driven, the latter being more automated.

Traditional BI vendors had built their products using proprietary architectures. While these architectures are ideal for strategic BI, they are not suited for operational BI. Because operational BI entails coupling BI applications with operation applications and operational processes, a component-based, service-oriented architecture (SOA) is necessary to fully support operational BI. Service-oriented architecture that lets users access real-time knowledge with a set of service feeds can maximize business agility while reducing complexity.

### **Problems in the implementation of BI landscape**

The economic landscape of the past few years has been challenging for everyone. With increased regulation and interest rates holding at historical lows (and likely to remain unchanged for an extended period of time), banks' profit margins are being squeezed, in turn causing them to seek new sources of revenue and develop new methods for understanding and deepening their customer relationships. Additionally, the banking industry has experienced considerable consolidation over the past few years. There are nearly half as many banks today as there were a decade ago due to mergers, acquisitions, and bank failures. This process has generally created substantial growth in the surviving institutions. Although the growth has benefited a number of banks, the acquiring institutions are finding it challenging to integrate systems, interpret their new data, and understand the impact to their existing portfolios.

**Consolidating information:** Though the banking business is all about money and finance, but it is essentially information driven business. Tracking and managing money and assets are central to the business as banks need to generate periodic statements and financial reports for various regulatory and compliance requirements.

**Mitigating operational risk:** For any banking organization, mitigating risk is an inherent part of doing business and banks are no different. Given the continuing explosion in transaction volumes and the growing demand for automation in the banking sector coupled with speed to market have escalated the cost of risk significantly.

**Targeted marketing opportunities:** To enhance their reach and stay ahead of competition, banks have to find more effective ways to cross-sell and up-sell to new and existing customers in order to improve campaign response rates, generate more revenue and, ultimately, ensure customer loyalty.

**Operational efficiencies:** To stay ahead of competition and increase operational efficiency, banks need to modernize their internal processes and systems.

**Customer experience:** Going forward, improving customer experience will be a deciding factor for any bank to ensure customer loyalty and will play a crucial role in increasing its customer base and other expansion and growth plans.

### **Conclusion**

The ability to better serve banking customers by having timely and accurate information available is proving to be an invaluable asset, especially in a market where pricing is relatively flat across the industry. Now more than ever, banks need to focus on ways to differentiate their offerings and to understand and retain more profitable customers by plugging into customer relationship management (CRM) and other client-facing processes. There is no question as to the value of a well-implemented BI platform. The investment in BI continues to separate institutions looking to maintain the status-quo from those looking to position themselves as industry leaders. This is further supported by Gartner research which indicates that over the next five years, organizations on the forefront of BI are likely to financially outperform their peers by 20 percent.

Implementing a reliable, single source of authoritative data demands buy-in from across the organization and will require collaboration between business and technology. With the obvious efficiency gains, banks are seeing a compelling business case for business intelligence solutions. The potential to unlock new and valuable insights from organizational data continues to present an incredible opportunity to banks and other financial institutions.

### **References**

- [1] Bruque, S., Moyano, J., Organisational determinants of information technology adoption and implementation in SMEs: the case of family and cooperative firms, *Technovation*, Vol. 27, No. 5, 2007, pp. 241–253.
- [2] Chuah, M. H., Wong, K. L., A review of business intelligence and its maturity models, *African Journal of Business and Management*, Vol. 5, No. 9, 2011, pp. 3424-3428.
- [3] Doherty, N. F., King, M., Al-Mushayt, O., The impact of inadequancies in the treatment of organizational issues on information systems development projects, *Information & Management*, Vol. 41, No. 1, 2003, pp. 49–62.
- [4] Foley, E., Guillemette, M. G., What is Business Intelligence? *International Journal of Business Intelligence Research*, Vol. 1, No. 4, 2010, pp. 1–28.

- [5] Gartner research, *Gartner EXP Worldwide Survey of More than 1,500 CIOs Shows IT Spending to Be Flat in 2009*, 2009, Retrieved 03/06/2012, from <<http://www.gartner.com/it/page.jsp?id=855612>>.
- [6] Gartner press release, *Performance Management Software Market Surpassed the \$12 Billion Mark in 2011*, 2012, Retrieved 06/05/2012, from <<http://www.gartner.com/it/page.jsp?id=1971516>>.
- [7] Golfareli, M., Rizzi, S., *Data Warehouse Design: Modern Principles and Methodologies*, McGraw-Hill Companies, 2009, 458 pp.
- [8] Hannula, M., Pirttimäki, V., Business intelligence empirical study on the top 50 Finnish companies, *Journal of American Academy of Business*, Vol. 2, No. 2, 2003, pp. 593–599.
- [9] Inmon, W. H., *Building the Operational Data Store*, 2nd ed, New York: Wiley Publishers, 1999.
- [10] Johansson, B., Sudzina, F., Actual vs. Planned ERP System Implementation Costs in European SMEs, *European Conference on Information Management and Evaluation*, Gothenburg, Sweden : University of Gothenburg, 2009, pp. 232–238.
- [11] Luhn, H. P., A Business Intelligence System, *IBM Journal of Research and Development*, Vol. 2, No. 4, 1958, pp. 314-319.
- [12] Moss, L., Atre, S. (2003) *Business Intelligence Roadmap: The Complete Project Lifecycle for Decision-Support Applications*, Addison-Wesley, Boston.
- [13] Power, D. J., *A Brief History of Decision Support Systems*, DSSResources, 2007, Retrieved 11/11/2010, from <<http://DSSResources.COM/history/dsshistory.html>>, version 4.0.
- [14] Ranjan, J., Business intelligence: concepts, components, techniques and benefits. *Journal of Theoretical and Applied Information Technology*, 2005-2009, pp. 60–70.
- [15] Thompson, O., *Business Intelligence Success, Lessons Learned*, 2004, Retrieved 20/03/2010, from <[technologyevaluation.com](http://technologyevaluation.com)>.
- [16] Wixom, B., Watson, H., The BI-Based Organization, *International Journal of Business Intelligence Research*, Vol. 1, No. 1, 2010, pp. 13–28.