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The Future Scope of Business Intelligence (BI)

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Abstract: Business intelligence (BI) is a broad category of application on programs and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. BI applications support the activities of decision support, query and reporting, online analytical processing (OLAP), statistical analysis, forecasting, and data mining. BI includes a set of concepts and methods to improve business decision making by using fact-based support systems.
Keywords: Business intelligence (BI), OLAP, Data Mining,

I. INTRODUCTION

Business intelligence has since evolved from the decision support systems that began in 1960's and has developed through the mid-1980s. The origin of DSS is from the computer-aided models made to assist decision-making and planning. It was in the late 1980s when business intelligence came into focus which began from DSS, data warehouses, executive information systems and OLAP.[2] Demand for Business Intelligence (BI) applications continues to grow even at a time when demand for most information technology (IT) products is soft [Soejarto, 2003; Whiting, 2003]. Yet, information systems (IS) research in this field is, to put it charitably, sparse.While the term Business Intelligence is relatively new, computer-based business intelligence systems appeared, in one guise or other, close to forty years ago.[3] BI as a term replaced decision support, executive information systems, and management information systems [Thomsen, 2003]. With each new iteration, capabilities increased as enterprises grew ever-more sophisticated in their computational and analytical needs and as computer hardware and software matured. In this paper BI systems are defined as follows:

"Business intelligence, or BI, is an umbrella term that refers to a variety of software applications used to analyze an organization's raw data. BI as a discipline is made up of several related activities, including data mining, online analytical processing, querying and reporting."[14]

Companies use BI to improve decision making, cut costs and identify new business opportunities. BI is more than just corporate reporting and more than a set of tools to coax data out of enterprise systems. With today's BI tools, business folks can jump in and start analyzing data themselves, rather than wait for IT to run complex reports.[1]

With today's BI tools, business folks can jump in and start analyzing data themselves, rather than wait for IT to run complex reports. This democratization of information access helps users back up—with hard numbers—business decisions that would otherwise be based only on gut feelings and anecdotes. Although BI holds great promise, implementations can be dogged by technical and cultural challenges. Executives have to ensure that the data feeding BI applications is clean and consistent so that users trust it.[4]

II. WHAT IS BUSINESS INTELLIGENCE USED FOR?

The aim of business intelligence is to support better business decision-making which is why it can be referred to as decision support system or DSS. Even if the term business intelligence is also sometimes used as a substitute for competitive intelligence since they both support decision making, business intelligence uses technologies, processes and applications to analyze mostly internal, structured data and business processes. Competitive intelligence, on the other hand, gathers, analyzes and distributes information focusing on the competitors of the company. Business intelligence on a broader scale can possibly include the subcategory of competitive intelligence.[2]

The BI application usually uses data that are gathered from data warehouses or a data mart. But not all data warehouses are used for business intelligence; likewise, neither do all business intelligence applications require a data warehouse. To be able to differentiate concepts between data warehouses and business intelligence, Forrester Research, an independent technology and market research company that offers advice on existing and potential impact of technology to their client's as well as the public, repeatedly defines business intelligence in one of two ways, the broad definition being "BI as a set of methodologies, processes, architectures and technologies that transform raw data to meaningful and useful information to enable more effective strategic, tactical and operational insights and decision-making". Looking at the use of business intelligence in this definition, it will also include

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technologies like data integration, data quality, data warehousing, master data management, text and content analytics among many others that the market occasionally adds into the information management segment. [2] Business intelligence can also be responsible for a pro-active approach wherein there is an Alarm function which alerts end-users immediately. An example of an alert is when a company goes over the threshold value; the color of that amount in the report becomes red which alerts the business analysts.

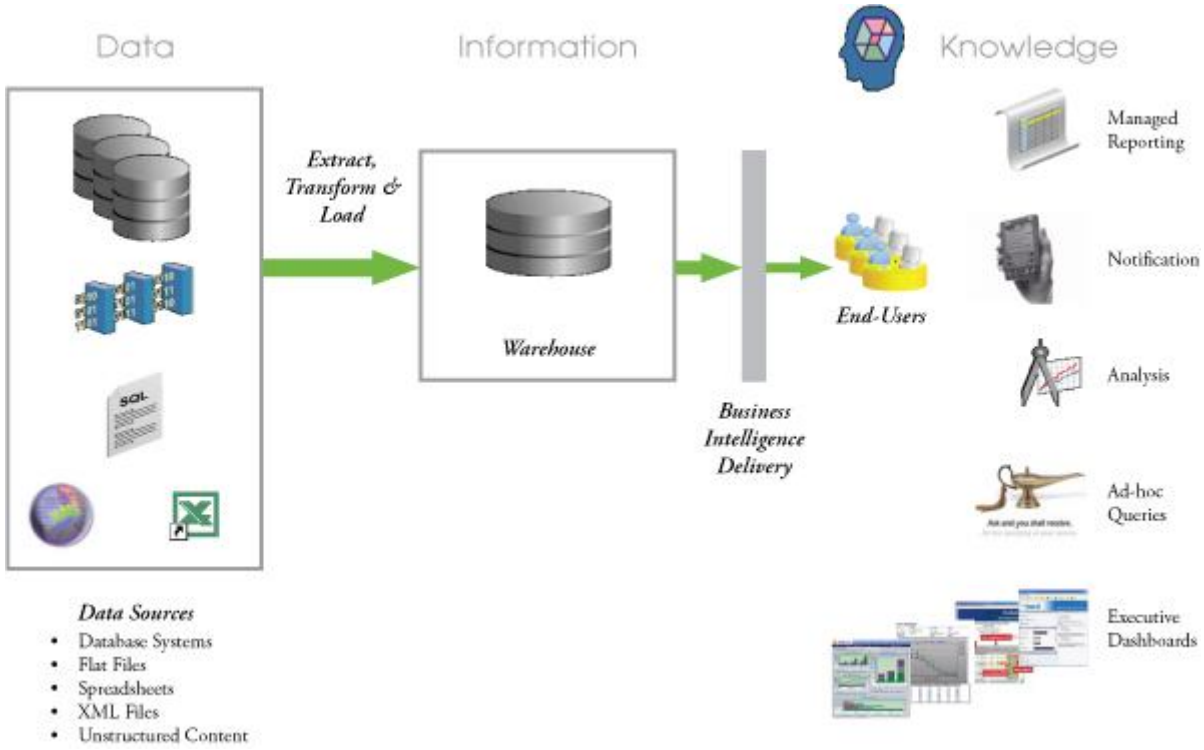

Fig 1.Business Intelligence tools

Business Intelligence tools are application software programs designed for reporting, analyzing and presenting data. These tools are helpful in reading data already stored in data mart or data warehouse, and with this information, a business can reach new heights of success in today's competitive market place. [3]One of the most important and most common Business Intelligence tools is the Microsoft Excel. This is mainly because this program is relatively cheap and is easily accessible. It is commonly used and is available on almost any computer system. An Excel sheet can be sent easily and quickly to a person and you do not need to worry whether the person will be able to read the numbers or not. Microsoft Excel has most of the functionality that a user may need for displaying and reading data.[6]

III. ADVANCEMENTS IN BUSINESS INTELLIGENCE

Imagine having the ability to view your business information on a social, connective interface designed to be customizable in accordance with your personal preferences. Envision a program that promotes configurability, mobility, and on the go information updates in order to keep you in the know whenever new data becomes available. These abilities with information analysis and transfer are the future ofbusiness intelligence for finance. Such software programs are available to businesses of all shapes and sizes.[5]

Each year new advances in technology are allowing for even greater possibilities in business information fields. For modern business enterprises—especially those that are engaged in internet marketing and information transfer—it is vitally important to stay on the forefront of business intelligence (commonly referred to as BI) technology. In the past, a company would need to hire whole teams of analysts to meet their BI needs. Now, with the unprecedented increase in understanding of software and social media, [4]businesses can access information that is more accurate, accessible, and easy to understand than ever before. And the

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best part is, it can cost a fraction of the price.

IV. WHAT MAKES BI SO IMPORTANT?

In today's increasingly complex economy, there is more to business than simple calculations based on speculative analysis. Companies need access to relevant, accurate data in order to keep up with the consumer market trends that will dictate their actions as a business. As complexity within the global marketplace grows, it becomes increasingly difficult to keep up with all the pertinent information that requires the attention of business owners. [6] This means that new ways of thinking about intelligence must be considered in order to adapt to the constant changes in consumerism. Fortunately, the very technologies that have promoted the economic complexity of this day and age have also supplied businesses with the ability to access this information easily and without hassle. Software programs can help business owners connect the various specialized fields within a company in order to bring about a clear view of the enterprise as a whole. Marketing information, logistical data, supply and demand numbers, and other indispensable components of business can be compared, [7]viewed side by side, and presented in a way that translates numbers into meaningful data.

V. THE FUTURE BUSINESS INTELLIGENCE

Various business intelligence companies have developed such software programs in order to help business owners gain a comprehensive view of their company's data. While there are many different advantages that come with integrating a computer application with a specific organization's business intelligence for finance, there are a few aspects of this technology that make it superlatively advantageous. One the fundamental successes of any Business Intelligence initiative is developing a consistent, single "version of the truth" across all sources of information, yet this is also one of the most challenging. [10]

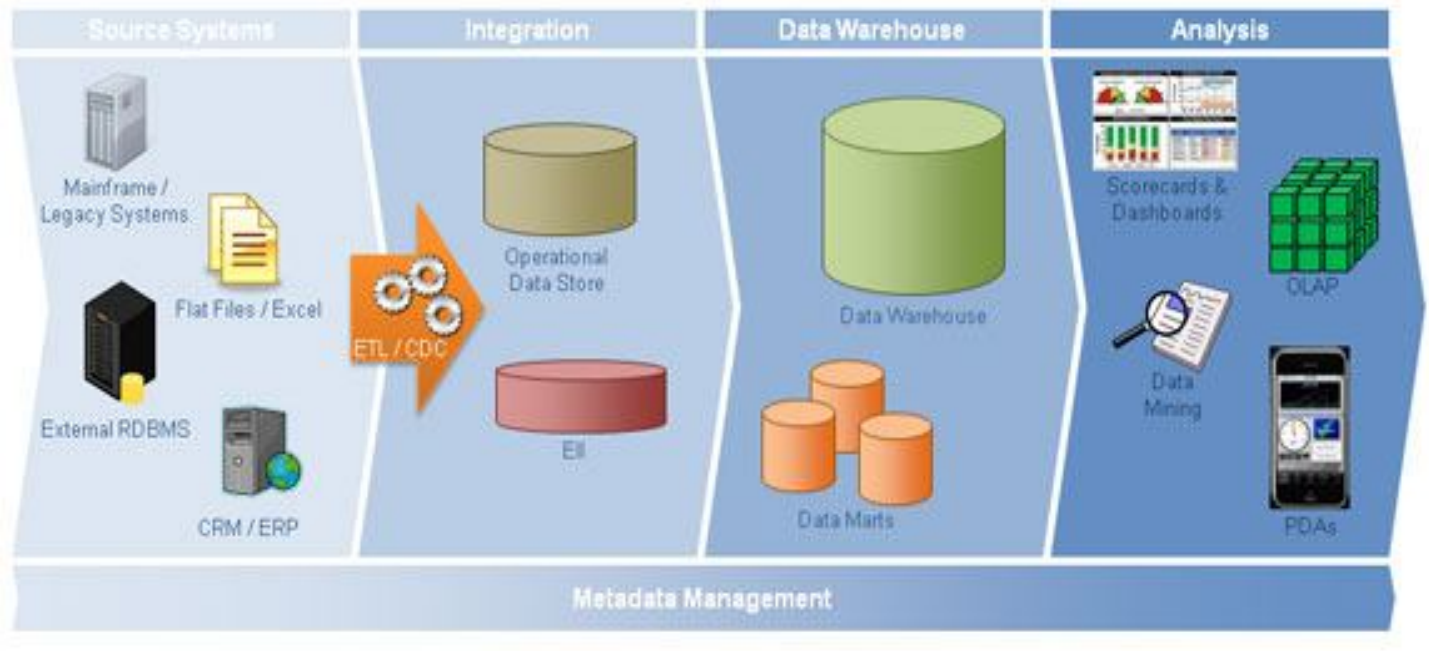

Fig ii) Business Intelligence-A High Level Architecture.

As many economists and technical experts have pointed out in recent years, technology is not slowing down, but increasing in its constant advancement. This means that old, outdated methods are becoming less and less relevant every day. However, when companies use business intelligence for finance software programs, the need to overhaul systems on a regular basis is dramatically decreased. This is because computer software can be updated from within the program—often without the need for any human interaction with the program. This means that BI software can remain relevant for a long time to come. [8]It not only helps you as a business adapt to the changing economy, but it also undergoes adaptation itself.

In addition to the adaptive qualities of BI software, there are also financial implications that can save businesses money while increasing the effectiveness and efficiency of their enterprise. In years past, companies would either need to create entire

departments to conduct analytical processes, or else outsource their BI needs to a different company. Both of these practices came with a high price and lacked the efficiency that many companies were looking for. However, now—for a fraction of the cost—businesses can access information faster and with more accuracy.[9]

VI. BUSINESS INTELLIGENCE USAGE

Business intelligence usage can be categorized into the following categories:

A. Business operations reporting

The most common form of business intelligence is business operations reporting. This includes the actuals and how the actuals stack up against the goals. This type of business intelligence often manifests itself in the standard weekly or monthly reports that need to be produced.[12]

B. Forecasting

Many of you have no doubt run into the needs for forecasting, and all of you would agree that forecasting is both a science and an art. It is an art because one can never be sure what the future holds. What if competitors decide to spend a large amount of money in advertising? What if the price of oil shoots up to $150 a barrel? At the same time, it is also a science because one can extrapolate from historical data, so it's not a total guess.

C. Dashboard

The primary purpose of a dashboard is to convey the information at a glance. For this audience, there is little, if any, need for drilling down on the data. At the same time, presentation and ease of use are very important for a dashboard to be useful.[11]

D. Multidimensional analysis

Multidimensional analysis is the "slicing and dicing" of the data. It offers good insight into the numbers at a more granular level. This requires a solid data warehousing / data mart back end, as well as business-savvy analysts to get to the necessary data.

E. Finding correlation among different factors

This is diving very deep into business intelligence. Questions asked are like, "How do different factors correlate to one another?" and "Are there significant time trends that can be leveraged/anticipated?[7]

VII. CONCLUSION

For structured data, many BI tools exist for acquisition, integration, cleanup, search, analysis, and delivery. Further work is needed, however, to integrate these tools and to provide actionable information. BI tools for semi-structured data, on the other hand, are not yet mature. However, significant work is being done in industry to deal with semi-structured data.[8] entity identification and resolution is a very high-end and little-used function. It is mostly the domain of bank fraud and government intelligence. As more and more data sources come online this will become increasingly important as a core part of the BI stack. [9][13]

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