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The Survey Paper on Importance of Integration of Knowledge Management and Business Intelligence

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Abstract: ***The purpose of the paper is to understand the difference between knowledge management and business intelligence and to establish a framework for relating one field to the other. The scope of the paper is defined difference between Knowledge Management and Business Intelligence to clarify the role of each in a business environment and use of this technology in growing industries. Business Intelligence focuses on explicit knowledge, but Knowledge Management focuses both tacit and explicit knowledge. Both concepts promote learning, decision making, and understanding. This paper explains the integration between Knowledge Management and Business Intelligence and makes it clear that Business Intelligence should be viewed as a subset of Knowledge Management. This paper establishes a clear difference between two important fields of study, Knowledge Management and Business Intelligence. Knowledge Management technologies incorporate to create, store, retrieve, distribute and analyze structured and unstructured information. That is, Knowledge Management technologies help to process and organize textual information and data. Business Intelligence concerns itself with decision making using data warehousing and online analytical processing techniques (OLAP). In this paper, we describe a particular approach based on an OLAP model enhanced with text analysis and eClassifier performs text analysis and integration of data and text through an OLAP style interaction model.***

Keywords: Knowledge management, Integration, Business Intelligence, Data warehouse, OLAP

1. Introduction

Many industries are confused between knowledge management with business intelligence. According to OTR consultancy, who done survey, 60 percent of consultants did not understand the difference between the two [5], [6].

Knowledge management is a systematic process of finding, selecting, organizing and presenting information in such a way that improves an employee's knowledge in a specific area of interest [6], [8]. Knowledge management helps an organization to gain and understand from its own experience. Knowledge management activities help the organization to focus on acquiring, storing and utilizing knowledge for such things as problem solving, dynamic learning, strategic planning and decision making. [9] [10] Knowledge management defined to collaboration, content management, organizational behavioral science, and technologies. Knowledge management technologies incorporate to create, store, retrieve, distribute and analyze structured and unstructured information [10]. Knowledge management (KM) technologies help to process and organize textual information and data which are used to enhance search capabilities and to detect garner meaning and assess relevance so as to help answering questions, realizing new opportunities, and solving current problems.

Business Intelligence (BI) focused on decision making using data warehousing and online analytical processing techniques (OLAP) [4], [24]. Data warehouse is collected relevant data into a repository, where it was organized and validated so it can be a decision-making objective. The various stores of the business data were extracted, transformed and loaded from the transactional systems into the data warehouse [4], [5]. An important part of this process is data cleaning where variations in data schemas and data values were resolved. In the data warehouse, a multidimensional model can be created which supports flexible drill down and roll-up analyses [10]. Tools from various vendors provide end users with a query and front end to the data warehouse. Large data warehouses can hold tens of terabytes of data, whereas smaller hold 10 to 100 gigabytes [12], [13].

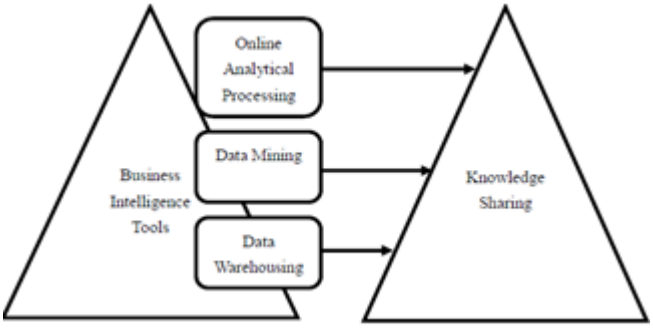

Figure 1: The Role of BI in KM [4]

2. Literature Review

2.1 Business Intelligence:

Business Intelligence includes several processes and technologies (data mining, data warehouse, and OLAP) [14]. Business Intelligence (BI) is used to represent the tools and systems that play a vital role in knowledge sharing and dissemination at organizations [15]. These allow an organization to gather, store, access and analyze corporate data to aid in decision-making [14], [17].

Business intelligence tools are software tools which allow the retrieval, analysis and reporting of data [16]. This

includes a wide variety of software tools which are spreadsheets, OLAP, visual analytics, querying tools, data mining, data warehousing, and decision making tools, that help organizations management to generate meaningful knowledge to perform short and long term strategic planning [14].

2.2 Knowledge Management:

Knowledge Management (KM) includes a Knowledge Sharing in which sharing knowledge (information, skills, and expertise) explicit or tacit and exchanging it among people who are working in an organization. Sharing of knowledge is a major challenge in the field of knowledge management because some employees tend to resist sharing their knowledge with the rest of the organization [19] ,[25]. These require employing the skills and techniques of knowledge engineers who help employees to realize the importance of knowledge sharing within their organizations.

3. BIKM Problems

To understand the importance of BIKM, let's look some real business problems and determine how this technology can provide a return on the investment (ROI) [2], [22]. The ROI can be achieved: (1) through cost reduction and improve productivity [2], and (2) through identification of revenue opportunities and growth [2].
Here are some scenarios in which customer would benefit from BIKM integration [2]:
3.1. Understanding sales effectiveness
3.2. Improving support and warranty analysis
3.3. Relating Customer Relationship Management (CRM) to profitability(hand-holding)

4. Environmental Issues

We have studied some scenarios which are benefited to the customer but naturally there are some environments with varying complexity in which these scenarios occur and created some issues [8].
Here we differentiate three general environments based scenarios on degree of integration of BIKM that is text and data sources.
4.1. The first scenario occurs when text information in the same database present in the business data and is unambiguously associated with the related business data.
4.2. The second scenario occurs when textual information in the system is distinct from operational data stores systems used in data marts.
4.3. The third scenario occurs when relating text to the data. Absence of metadata to relate text to the data, classification technology is used to categorize the text documents or data.

5. Knowledge development cycles in Data Mining

Knowledge workers involved in Data Mining and its applications are usually divided into two groups: business insiders and data miners [20]**.** The business insiders are middle level managers who perform task on problem solving and decision making.
In the Data Mining there have been "step-by-step data mining guides" that best describe how analytical work is done by data miners [21].

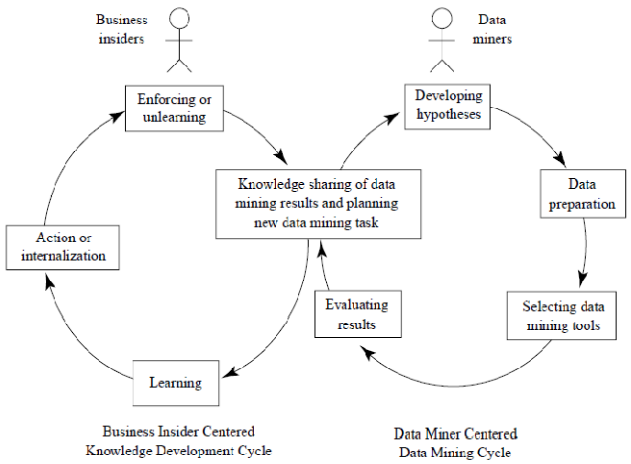

Figure 2: Two cycles of knowledge management through data mining [4]

- **Knowledge sharing:** Business insider has to understand the past result, and share their knowledge with the employees working on that project [4].
- **Learning:** Business insider must understand the result which is obtained from DM. Learning process tells how and DM result is useful for business insider [4].
- **Action:** Action is an activity which is taken at the time of decision making, or it is an operation done after learning [4].
- **Enforcing:** After result is displayed the business insider has to re-enforce the related work to knowledge sharing and data miner to observe it [4].

6. Conclusion

KM technologies, described earlier as less mature compared with BI technologies, are now capable of combining today's content management systems and the web, with vastly improved searching and text mining capabilities to derive more value from the explosion of textual information. Ideally, this explicit information will be blended and integrated with the data and techniques used in BI to provide a richer view of the decision-making problem sets and alternative solution scenarios. However, even if this is accomplished, mitigating, intervening variables called ''tacit'' knowledge, leadership, culture, structure, roles, and responsibilities, IT infrastructure, and performance measurement must be recognized and their affect on the decision-making process assessed.

This role suggests the effectiveness of BI in the future, and will measure based on how well it promotes and enhances knowledge, how well it improves the mental model(s) and understanding of the decision maker(s) and thereby how well it improves their decision making and hence firm performance. The need for the integration of KM and BI is clear.

7. Future Scope

In future more work can be done to analyses the blending factors which help in strong blending of KM and BI.
This would help the practitioners in using a strong blend of KM and BI to take decisions effectively.

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