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Knowledge Management and Recovery Processes using IT: An approach towards Data Mining

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Abstract— **Knowledge Management is a procedure of creating, disseminating, utilizing and handling the data and information of organizations. Knowledge management and recovery process includes innovative design, or it's exclusively a meeting point on knowledge transferring, storage, and expansion. It indicates multidisciplinary approach for achieving organizational objectives by making the finest utilization of knowledge. For past two decades it has been seen that there is an emerging attention towards knowledge management recovery practices with the usage of information technology. The research paper provides a clear input of knowledge management and recovery process using IT proficiency and its approach towards Data mining; hence data mining is also a tool of business intelligence for knowledge management and recovery process.**

Keywords: Knowledge management, IT competency, Data Mining, Knowledge recovery, Data mining

1. Introduction

Knowledge Management had been emerging distinct area in various industries and frequently quoted a forerunner of organizations recital. Any organization which implement knowledge management and recovery processes to carry out efficiently hence the organizations capable to execute wisely to maintain the competitive advantage by developing the knowledge resources. Hence, it is an important to be acquainted for producing knowledge broadcast for the organization and features it facilitates these processes.

Latest year, several researchers have been associated with knowledge management and recovery process towards the development of information and communication technology. The new technology are portray with the competence to persuade into conventional way of accepting certain organizational phenomena and behaviors which affects the organization deal to test knowledge society [1].
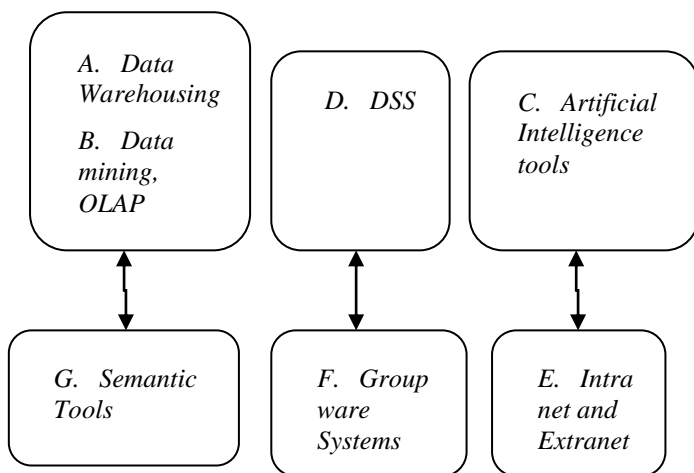
Hence, purpose of the research article is extending an understanding about Information Technology proficiency affects knowledge management and recovery process through data mining. The research paper proposes a speculative model which has data collection or preparation, data cleaning, after the cleaning process, the data integration has to be done and then the data to be presented for mining operations, through which knowledge recovery happens. The following divisions discuss the concepts of knowledge management and process of knowledge recovery towards Data mining.

2. The Origins of Knowledge Management

The concept of knowledge management becomes popularized over period of time, specifically in the management discipline with the help of technology. Through the Internet crop up, the industries quickly recognize that an intranet is a magnificent tool through this the information could be easy to retrieve and to distribute it among the geologically dispersed locations of any organizations. The term apparently was first used in current context [2] for internal study on the information handling and utilization [3]. Knowledge Management becomes public as it were at a conference in Boston in 1993 organized by Ernst and Young [4]. Knowledge Management was offered by Tom Davenport early on [5]:"Knowledge Management is the process of acquiring, distributing and effective use of knowledge".

2.1 A Framework of Knowledge Management Tools

Due to the large amount of data available in the organizations, the concept of knowledge management and recovery practices becomes tougher and complex. Through the help of IT and knowledge management tools and software's extend the necessary support to do KRP process. The IT based tools and techniques that could support knowledge management process and recovery. The following categories were IT based tools:

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A. Data          D. DSS       C. Artificial
Warehousing                   Intelligence
                              tools
B. Data
mining,
OLAP


G. Semantic      F. Group     E. Intra
Tools            ware         net and
                 Systems      Extranet
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2.2 Process of Knowledge Recovery

Data Mining is essential towards the process of knowledge recovery. The below diagram (Fig 2) represents the collection of data, the data has to undergo a cleansing process is as data cleaning, and the data integration could be happen to integrate the multiple data sources were combined. Data required for the analysis would be considered and retrieved from the common database. Next step is Data mining is would take place to get appropriate data, hence the mining operations would start. Data presentation would be the last process of knowledge recovery.
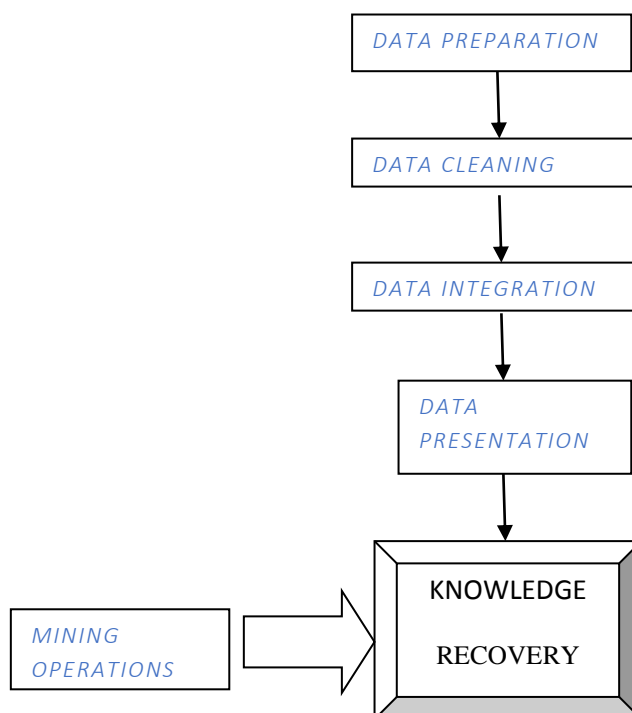
3. Data Mining – An Overview

Data mining uses a different mold for the creation of information about data. In Data Mining large amounts of data are scrutinized, facts are discovered and brought to the attention of the organization. The most basic quoted definition of data mining process, highlighted some of the distinguishing uniqueness was developed [6] defines it as the nontrivial process of identifying

valid, novel, potentially useful, and ultimately understandable patterns of data. Data Mining is an interdisciplinary domain, drawing the concepts from different areas such as data warehousing, database systems, statistics, data visualization etc. There is a traditional data analysis hence this process in which, traditional data is assumption-driven, whereas hypotheses are formed and the data is validated. In contrast data mining is discovery-driven, which means prototype is mechanically retrieved from voluminous of data. Exclusively high speed network is acceptable hence voluminous data has to be transferred and rapidly decreasing disk cost to be acceptable. The data to be stored cost-effective, high performance computing is required for data mining process.

The data mining approaches create more challenging issues on data mining. The size and scope of new datasets is incredible. These data inclusive in form of e-mail, pictures, videos and other forms of data are increasingly extracted. Integrated data extracting environment and application of data retrieving techniques are involved in solving large application problems. With the high-speed technology support, the large amounts of data are effectively analyzed from diverse perspectives.

KNOWLEDGE RECOVERY PROCESS (KRP)

```
DATA PREPARATION
        |
        v
DATA CLEANING
        |
        v
DATA INTEGRATION
        |
        v
DATA PRESENTATION
        |
        v
MINING          KNOWLEDGE
OPERATIONS ==>  RECOVERY
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There are many data mining tasks are available like classification and Regression, Association Rule analysis, Cluster analysis, Text mining tasks, Link analysis tasks. In an information era, the organization specifically to make decisions with the wide availability of voluminous of data, that can be done through data mining process, and the types of problems that could be addressed.
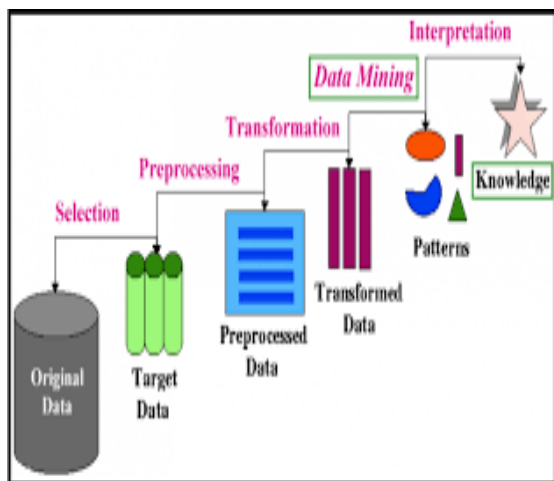
Source: Image from Wikipedia KDD process

4.   Literature Review

Knowledge Management and recovery process is a practices of creating design, expansion, and appliance towards knowledge to improve the recital of organizations [7].

In general, Knowledge Management is concerned for human subjective knowledge information. The majority of frameworks used in the Knowledge Management domain, whereas inferred and precise knowledge framework is created for a vibrant human progression for mitigating special idea [8] are typically not IT based. Even though Knowledge Management had not progress out of formal methodology, knowledge management proficiently deals with unstructured information and inferred knowledge which Business Intelligence fall short to address [9]

The author [10] highlighted that the initial work has been carried out in this area hence it is concentrated towards the performance improvement on algorithms by use of diverse data formation or different depiction. Therefore the basis of these problems the sequential pattern mining is categorized into two types: A priori approach based algorithms and pattern growth approach based algorithms.

Findings

The research paper provides an overall insight concerns the knowledge management and knowledge recovery process through data mining techniques. The methodology or techniques could be adopted for knowledge recovery through data mining process is involved with many tools and techniques like regression, decision tress, association rules, multi-dimensional association rules, Neural networks etc. Hence the concept of knowledge management and recovery practices becomes tougher and complex. Through the help of IT and knowledge management tools and software's extend the necessary support to do KRP process. The IT based tools and techniques that could support knowledge management process and recovery through Data mining process.

5.   Practical Implications

The research paper propose that any important data mining process in the knowledge management and recovery context must involve data miner center and the organization centered KRP process. The data mining had significant potential features of interdisciplinary development in information technology. Data mining is useful for e-commerce to know about customer data, sales report etc., and it is useful for all domains like health care, finance, banking, marketing, insurance, retailing etc. Through data mining process the information is extracted, transformed, storage and can be accessed by the professionals to empower decision support system (DSS). Financial company implemented the ontology based approach of Knowledge Management.

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