

Data Warehousing & Data Mining Is- A New Paradigm for Good E-Governance

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Abstract – In this paper I intend the concept of implementation of data warehousing & data mining in E-governance for good governance. India is a large autonomous nation having multilevel administrative. Vast amount of data is generated and circulated by different government departments. The primary duty of government is to provide accurate and clear information to citizens. Make use of efficient Data Warehousing and Data Mining techniques may surely enhance government to do better for people. There are many methodologies used increase the efficiency of E-governance. One of them is Data warehousing and Data mining. It is must to unite all the departments in terms of data sharing so that all departments can work under a single controlling authority. It is important to develop a structure for creating a centralized countrywide data warehouse which has horizontal as well as vertical interconnections having limited accessibility at lower level authorities and can be fully accessed at the higher levels. Proper and accurate data can provide the information to better support for government decision, and also provides the enhanced services for public and achieves humanist truthfully.

Keyword: E-Governance, Data mining, Data Warehousing, Impacts of Data mining, Data warehousing in e-governance & Projects.

I. INTRODUCTION

E-governance is the application of Information and Communication Technology. The fundamental concept behind the e-Governance is to delivering government services and exchange of information between businesses, citizens and all the departments of the government with fully transparency and accuracy.

E-governance is the future; many countries are looking forward to for a corruption-free government.

There are some great definitions by great people are:

S. No	Definition	Author/Reference
1	E-governance, meaning ‘electronic governance’ is using information and communication technologies (ICTs) at various level soft he government and the public sector and beyond, for the purpose of enhancing governance.	Bedi, Singh and Srivastava , (2001)[1]
2	“E-Governance may be understood as the performance of this governance via the electronic medium in order to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities.”	According to UNESCO [2]
3	“E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth,	According to the World bank,[3]

	and/or cost reductions.”	
4	“Fundamental aspects of governance” are: graft, rule of law, and government effectiveness. Other dimensions are: voice and accountability, political instability and violence, and regulatory burden”.	Kaufmann , Kraay and Zoido-Lobaton 1999
5	“Governance implies the processes and institutions, both formal and informal, that guide and restrain the collective activities of a group. Government is the subset that acts with authority and creates formal obligations. Governance need not necessarily be conducted exclusively by governments. Private firms, associations of firms, nongovernmental organizations (NGOs), and associations of NGOs all engage in it, often in association with governmental bodies, to create governance; sometimes without governmental authority.”	Keohane and Nye (2000),
6	It is “... epitomized by predictable, open and enlightened policy making; a bureaucracy imbued with a professional ethos; an executive arm of government accountable for its actions; and a strong civil society participating in public affairs; and all behaving under the rule of law.”	World Bank (1994): Governance: The World Bank’s Experience.
7	"Governance" is a way of describing the links between government and its broader environment - political, social, and administrative."	Kettl (2002)
8	“Application of electronic means in (1) the interaction between government and citizens and government and businesses, as well as (2) in internal government operations to simplify and improve democratic,	Backus (2001).

	government and business aspects of Governance.”	
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Clearly, these definitions do not suggest only public sectors .It implies managing and administering policies and actions in the private sector as well. India has taken great strides in promoting e-governance applications in new year. The Indian practice in e-governance can broadly speaking be divided into 2 main phases. The first from the late 1960s/early 1970s to the late 1990s, and the second from the late 1990s onwards.

In other words e-Governance is a wider perception that defines and assesses the impacts technologies are having on the practice and administration of governments and the relationships between public servants and the wider society, such as dealings with the elected bodies or outside groups such as not for profits organizations, NGOs or private sector corporate entities.

According to the World Bank (2002) E-Governance has the following benefits;

1. It greatly simplifies the process of information accumulation for citizens and businesses.
2. It empowers people to gather information regarding any department of government and get involved in the process of decision making.
3. E-Governance strengthens the very fabric of democracy by ensuring greater citizen participation at all levels of governance.
4. E-Governance provide computerization of services, to the public to ensuring that information regarding every work of public welfare is easily available to all citizens, eliminating corruption.
5. This revolutionizes the way governments function, ensuring much more transparency in the functioning, thereby eliminating corruption.
6. Proper implementation of e-Governance practices make it possible for people to get their work done online thereby sparing themselves of unnecessary hassles of traveling to the respective offices.
7. Successful implementation of e-Governance practices offer better delivery of services to the public and improved communications with business and industry, citizen empowerment through access to information, better management, greater convenience, revenue growth, cost reductions etc.

8. Furthermore, introduction of e-Governance brings governments closer to citizens. So much so that today it becomes extremely convenient to get in touch with a government agency. Indeed, citizen service centers are located closer to the citizens now. Such centers may consist of an unattended kiosk in the government agency, a service kiosk located close to the client, or the use of a personal computer in the home or office.
9. E-Governance practices help business access information that might be important for them at a click[4]
10. National e-Governance Plan (NeGP) currently consists of 27 mission mode projects (MMPs) and 8 support components to be implemented at the Central, State and Local government levels. These include projects such as income tax, customs and excise and passports at the Central level, land records, agriculture and e-district at the State level and panchayats and municipalities at the local level.

But the main thing is that if we want right information on right time with high security and accuracy then we have to follow rules, regulations and great techniques to get proper database for decision making.

Usually the decision-making data are stored in files and databases. The results getting by huge amount of data are not easy, for which the data mining techniques are very constructive. Data mining is the process of taking out information in terms of patterns or set of laws (e.g. association rules, sequential patterns, classification trees) from huge databases. So, it is also known as data or knowledge discovery. the data warehouse supports different types of analyses, including elaborate queries on large amounts of data that may require extensive searching[5].Data Warehousing and Data Mining are related technologies which have seen a significant boost in the last decades.

II. DATA MINING

Data Mining and Data Warehousing are two most important techniques for prototype uncovering and strenuous data management in present technology.

	discovery in databases, in computer science, the process of discovering interesting and useful patterns and relationships in large volumes of data. The field combines tools from statistics and artificial intelligence (such as neural networks and machine learning) with database management to analyze large digital collections, known as data sets. Data mining is widely used in business (insurance, banking, retail), science research (astronomy, medicine), and government security (detection of criminals and terrorists).[7]	.britannica.com/EBchecked/topic/1056150/data-mining
3	“The process of analyzing data to find hidden patterns using automatic methodologies”	MacLennan et al (2009, p. 1).
4	“The application of data base technology and techniques—such as statistical analysis and modeling—to uncover hidden patterns and subtle relationships in data and to infer rules that allow for the prediction of future results.”	U.S. Government Accountability Office (formerly the U. S. General Accounting Office) (GAO)
5	“Data mining is the process of automatically discovering useful information in large data repositories” (p. 2)	Tan, Steinbach, and Kumar (2006),

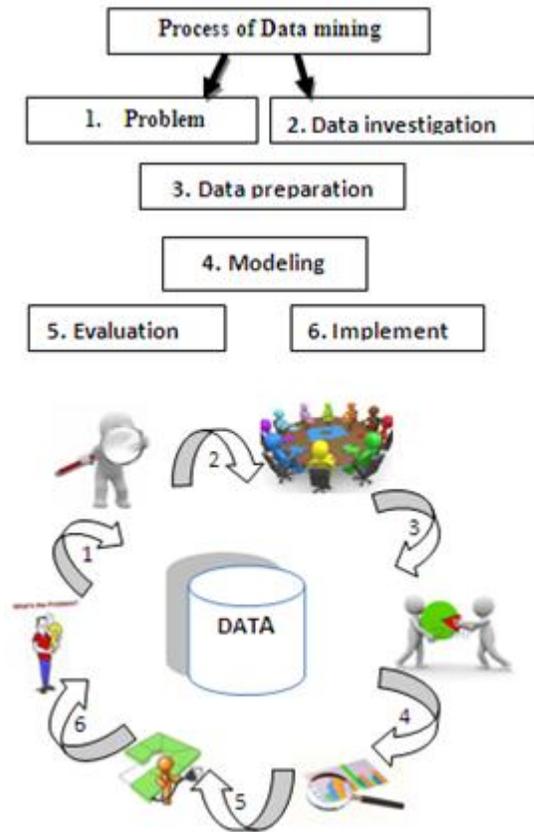
Data mining is a very important tool. It can answer the questions that traditionally were too time consuming to resolve. They prepare databases for finding hidden patterns, finding predictive information that experts may miss because it lies outside their expectations.

Process of Data mining

Data mining is a very interactive and iterative process. It has a power to uncover problems in-depth by using advanced analytical and modeling techniques. This process has some important steps like Problem definition, Data investigation, Data preparation, Modeling, Evaluation, and implement

S. No	Definitions	Author/References
1	Data mining is the process of collecting, searching through, and analyzing a large amount of data in a database, as to discover patterns or relationships: the use of data mining to detect fraud [6].	http://dictionary.reference.com/browse/data+mining
2	Data mining, also called knowledge	http://www

In first step we define what the problem is. Data mining experts work closely together to define the project objectives and the requirements from a business perspective.



1. In second step Data investigation we gather, portray, and discover the data. And also identify quality problems of the data.
2. In third step follow all activities required to build the final data set from the original raw data. In this step include table, case, and attribute selection as well as alteration and cleaning of data for modeling tools.
3. In fourth step define all the techniques of modeling. The main concept behind the modeling phase is to build model of high quality
4. In this phase experts examine the model. Models based on two important thing is the model satisfied the business objective and all business issue been measured.
5. The last phase is this show you the result of the data mining Data mining experts use the mining results by

exporting the results into database tables or into other applications, for example, spreadsheets.

Data mining is repetitive process. A data mining process continues after a solution is deployed.

Advantages of Data Mining

Today's is competitive world Every business fight for competition and achieving success. So it is must for a business to collect huge amount of data or information. Data Mining helps us Making Better Decisions. The goal of data mining is forecast - and prognostic data mining. The process of data mining include integrating the data, selecting the useful data and convert in meaningful information for data mining. Data mining is a very powerful tool. it is very helpful in many fields and find out information related to like: forecast future trends, customer purchase habits Improve company revenue and lower costs, Market basket analysis, Fraud detection etc.

1. Data mining is a vital part of knowledge discovery process that we can analyze a can analyze a huge set of data.
2. Data mining provide information to the financial institutions about loan information and credit reporting.
3. By applying data mining in operational engineering data, manufacturers can detect faulty equipments and determine optimal control parameters.[9]
4. It helps government agency by digging and analyzing records of financial transaction to build patterns.
5. Data mining can help law enforcers in identifying criminal suspects as well as apprehending these criminals by examining trends in location, crime type, habit, and other patterns of behaviors.
6. Data mining can assist researchers by speeding up their data analyzing process; thus, allowing those more time to work on other projects [10].

III. DATA WAREHOUSE

Data warehouse is the concept of data extracted from operational systems and made available as historical snapshots for ad-hoc queries and scheduled reporting. Data warehouse focuses on data storage. In other words we can say to retrieve and analyze data, to extract, transform and load data, and to manage the data dictionary are also considered essential components of a data warehousing system. Data warehousing become the part of organization's need. Because it provide steadfast consolidated, exclusive and integrated reporting and analysis of its data, at different levels of aggregation [11].

Governments deal with vast amount of data for decision making. Hence a data warehouse built for e-Governance can normally have data connected to person and land. When government makes good policies on behalf of proper information it makes comfort on high level for business and other sectors. The fundamental responsibility of government is to transform all the information related to citizens and business is to be transparent.

4. Decision makers can easily intelligible and inclusive information without the need to use sophisticated tools.
5. We the help of data warehouse we can obtain easily intelligible and inclusive information without the need to use sophisticated tools.

IV. IMPACT AND ROLE OF DATA MINING AND DATA WAREHOSING IN E-GOVERNANCE

The desire of the e-governance is to empower citizens through the access use of information. Government always required enamors amount of data. Data is put to an effective use in facilitating decision-making.

Data mining can resolve the management and governance problem of the country. For example data mining technique in e-governance construction by taking BHOOMI a project from government of Karnataka for helps to maintain and update the land records, in agriculture data has been taken and mined to analyze the climatic and weather changes which affect the production of the crop. And also helpful in predicting the climatic conditions so that better precautions can be taken to improve the agricultural output. Some important areas of data warehouse and data mining are:

- A. Agriculture
- B. Health
- C. Planning
- D. Education
- E. Commerce and Trade
- F. Tourism
- G. Revenue etc.

A. AGRICULTURE

Indian Agriculture is extremely diversified in terms of its climate, crops, horticultural crops, livestock resources, fisheries resources, plantation crops, water resources, soil etc. the diversity of its agricultural sector is both a curse and godsend to the social, economic, and cultural bases of India's vast population. Data mining techniques are used broadly in business and corporate sectors and be used in agriculture for data characterization, prejudice predictive and forecasting purposes. Though agriculture sector's contribution to national GDP has declined to 13.9% in 2011-12 due to relatively higher growth experienced in industries and services sectors, agriculture remains the principal source of livelihood for more than 58% of country's population. (This report representative by Department of Agriculture and Cooperation Ministry of

S. No	Definitions	Author/Reference
1	Data warehouse is a subject-oriented, integrated, time-variant and non-volatile collection of data in support of management's decision making process.	According to Bill Inmon [12]
2.	A data warehouse is a copy of transaction data specifically structured for query and analysis.	According to Ralph Kimball [12]
3.	The electronic storage of a large amount of information by a business. Warehoused data must be stored in a manner that is secure, reliable, easy to retrieve and easy to manage. The concept of data warehousing originated in 1988 with the work of IBM researchers Barry Devlin and Paul Murphy. The need to warehouse data evolved as computer systems became more complex and handled increasing amounts of data.	[13]

Advantages OF Data warehouse:

Data warehouse has adequate latent to right to use the impact of various wellbeing schemes across the population of the state. It used for rural and urban development planning, agricultural for cropping pattern, analysis and much more(In agriculture data has been taken and mined to analyze the climatic and weather changes which affect the yield of the crop. It can be very helpful in predicting the climatic circumstances.

1. Increased data consistency.
2. Creation of a computing infrastructure that can support changes in computer systems and business structures.
3. Citizens can have easy access to the government policies of the state.

Agriculture Krishi Bhawan New Delhi March 2013)[27]. Government compiles a large number of agriculture data for forecasting. When data is compiled it built into a data warehouse for analysis, mining. Data gives information like livestock, seeds, fertilizer, agricultural land, and machineries etc. collecting large amounts of data often is both a blessing and a curse. There is a lot of data available containing information about certain asset. Here soil and acquiesce properties, which should be used to the farmers advantage. This is a common problem for which the term data mining has been coined. Data mining techniques aim at finding those patterns or information in the data that are both valuable and interesting to the farmer. Raise and stabilizing the agricultural production at quicker pace is one of the basic conditions for agricultural development. Business such as seed, fertilizer, agrochemical and agricultural machinery industries plan production and marketing actions based on crop production estimates. Data mining is very supportive technique for E-governance for giving adequate information related to agriculture and Government provide facilities to the farmers and other people on the basis of information. A clear role for electronic governance emerges for the agricultural sector and these electronic governance models should be aimed at bringing 4 key changes:

1. Improve the quality and standards of existing agriculture related governance products and services being provided. This could include improving existing agricultural extension services through use of IT tools, opening new communication channels by which information about market prices and government procurement prices can reach farmers, or providing updated information about local agriculture offices and the services provided by them.
2. Provide new agriculture related governance services and products to the citizens/users, which are needed but have not been provided so far. This could include providing opportunities to farmers to access and modify their land records data accurately, providing credit cards to farmers to be used for purchasing of seeds, fertilizers and farm equipments, or installing community based equipment which could update the farmers about rainfall prediction, about prevalent crop diseases, or movements of wild animals in the area.
3. Enhance the participation of agrarian community in deciding what governance products and services should be provided and in what manner. This could include building capacities of farmers to decide how agriculture related government funds should be spent in their village, for instance on repairing the

lining of canals or restoring of rain harvesting structures. They should be able to influence government decisions on the appropriate location of dam construction, deciding who should qualify for farm subsidies, and the kind of courses offered by the local agriculture training centers.

4. Bring new sections of the agrarian community under the governance sphere. This includes bringing new sections of agrarian community within the governance sphere, and namely those who are more likeable to remain excluded: landless farmers, migrant laborers, women farmers, old farmers and tribal communities. Only when efforts are made to meet the above four conditions, can good governance become a reality for all sections of the agrarian community, and can ensure a healthy growth of the agricultural sector and improvement in the welfare of households, which are dependent on it for their livelihoods.

Thus the role of electronic governance in agriculture sector goes beyond important, but singular applications, such as digitalizing of government records, making government forms available online, or putting computers in agriculture training centers. Instead electronic governance becomes a tool for providing agriculture related governance products and services more effectively and uniformly to the entire agrarian community [14].

B. HEALTH

Data mining applications can greatly benefit for all parties concerned in the healthcare industry. Data mining can help healthcare insurers detect fraud and mistreatment healthcare organizations make customer relationship management decisions, physicians identify effective treatments and best practices, and patients receive better and more affordable healthcare services. Information is crucial for effective management and development of health services and therefore is an important tool. A Health Information System is mainly required to support management and operations at three levels: namely transactional and functional; operational control; planning (strategic and management). As stated by Capper & Sands (2006), public health and pharmacy are very closely linked—hence impossible to separate. Pharmacists play an important role to enhance the conditions of public health. According to a survey done by Rice & Katz (2000), the public depends upon Internet for health care information, advice and support. Indeed, healthcare hosts a number of services, provided by-government and e-governance. A case study-based research was conducted by Nawakda, Fathi, Ribiere & Mohammed (2008) on a knowledge management initiative

begun in 2001 in the Ministry of Health of Bahrain. The sharing and managing of knowledge was becoming important at all levels of the Ministry. In this governmental department, knowledge is primarily focused on patients (x-rays, lab tests and treatment costs). The following six types of treatments were identified in the 2005 World Health Organization's NCD report of Ministry of Health, Saudi Arabia (http://www.emro.who.int/ncd/pdf/stepwise_saa_05.pdf, 2005) are: Drug, Diet, Weight reduction, Smoke cessation, Exercise, Insulin [15]. By comparing causes, symptoms, treatments, and their adverse effects, data mining can analyze which courses of action are most effective for specific patient groups. It can also identify clinical best practices to help develop guidelines and standards of care. **Data Mining is helpful in healthcare.**

1. Patients can receive better, more inexpensive healthcare services.
2. Healthcare organizations can use data mining to make improved patient-associated decisions.
3. Insurers can become aware of medical insurance scam and mistreatment through data mining by establishing norms and then identifying unusual claims patterns.
4. Healthcare **organizations under increasing** financial pressure, data mining can also influence revenues, costs, and operating efficiency while maintaining high-quality care.
5. It can also recognize clinical paramount practices to help develop guidelines and standards of care.

Some Data mining Application in health care are: Treatment Effectiveness, Health care management, Customer relationship, Fraud and Abuse [16].

Data mining technique is very helpful in e-governance. Government can provide facilities on behalf of data or information which extract by data mining and keep records in data warehouse. Government can provide over use of ICT. (1) Free information will shift the power balance between doctors and patients. (2) The patient can not differentiate right and wrong information in specific context. (3) Computer guided self-treatment may be hazardous. (4) Greater empowerment of patients put higher responsibility regarding self-treatment. (5) Need of special legislation on data privacy (Blobel, et. al., 2006; Han Song, et. al. 2006), security, authorization etc. In paper based records a lot of information lie buried useless and unexplored. EMR is handy, useful, need based. Sophisticated, data mining techniques can be applied to EMR data to enable research and new discoveries. EMR can be integrated with e-mail for health education and self-care in diabetes, asthma, CKD, arthritis etc. e-prescription helps Parma co vigilance, computer-simulated patient encounter, computer assist reinstruction (CAI) are valuable in medical education.

Booming of e-health.com (O'Buyonge and Chen Leida) based on the fact that 40% of internet queries are health related is a successful business plan. Due to large population, lack of infrastructure, low per capita income, diseases and illiteracy, it is felt that nearly 70% of vulnerable populations are in the villages and out of reach. Here comes the concept of Village e health Centers to provide basic health care via online video-conferencing [17].

C. PLANNING

Planning (also called preparation) is the process of thoughts about and organizing the behavior required to accomplish a desired goal. Data mining is the process of searching data for previously unknown patterns and using those patterns to predict prospect outcomes. "Data Mining", often also known as "Knowledge Discovery in Databases", Data mining and predictive analytics are proven technologies that have become an integral part of the daily operations of leading organizations—from the FORTUNE 500 to government agencies and academic institutions. Data mining is the process of uncovering patterns in data using predictive techniques. These patterns improve decision making by providing the actionable insight needed to improve business processes—helping organizations achieve critical business goals. Predictive analytics combines data mining with decision optimization technologies—further automating and applying the results of this advanced analysis to everyday decisions.

Data mining is improving the decisions related to key initiatives such as: Customer relationship management, Fraud detection and prevention, Risk management, Manufacturing quality improvement, Healthcare quality improvement Homeland security etc.

From the last two decades data mining and knowledge discovery applications have got a rich focus due to its significance in decision making and it has become an essential component in various organizations. The field of data mining have been prospered and posed into new areas of human life with various integrations and advancements in the fields of Statistics, Databases, Machine Learning, Pattern Reorganization, Artificial Intelligence and Computation capabilities etc. The various application areas of data mining are Life Sciences (LS), Customer Relationship Management (CRM), Web Applications, Manufacturing, Competitive Intelligence, Retail/Finance/Banking, Computer/Network/Security, Monitoring/Surveillance, Teaching Support, Climate modeling, Astronomy, and Behavioral Ecology etc. All most every field of human life has become data-intensive, which made the data mining as an essential component. Advancements in data mining with various integrations and implications of methods and techniques have shaped the present data mining applications to

handle the various challenges [18]. Government's all sectors make plan on behalf of historical and current information. So without forecast they can't make a single step.

A brilliant example of such a paper is Elder and Pregibon (1996). I believe that we need to plan the future of statistics and statisticians in order to (1) stimulate a new explosion of statistical science, (2) explore analogies between probability methods (to describe the population or "infinite" data sets) and statistical methods for massive data sets, and (3) stimulate educational opportunities for applied researchers who use some statistical techniques, and for statisticians who work with non-statisticians using statistical methods. I believe we need to plan (1) the future of statistical methods, in a world overwhelmed with data, and (2) the future of statistical education and practice, in a world where computers and statistical computing packages can provide engineers, scientists, managers, professionals, and the public with technical proficiency in statistical methods which the health and prosperity of society increasingly requires and rewards. The future of statisticians must be planned, not forecasted. Statistical methods mining seeks to provide the vision and expertise that can prevent statistical computing from being used to unwisely apply statistical methods to reach faulty conclusions.

D. EDUCATION

Data mining is a powerful tool for academic intervention. Data Mining is used to extract meaningful information. Education is a necessary constituent for the success of country. In Data mining in learning environment is called educational data mining. Education is a vital part for the betterment and progress of a country. Educational data mining is emerging as a research area with a suite of computational and psychological methods and research approaches for understanding how students learn. New computer-supported interactive learning methods and tools—intelligent tutoring systems, simulations, games—have opened up opportunities to collect and analyze student data, to discover patterns and trends in those data, and to make new discoveries and test hypotheses about how students learn. Data composed from online learning systems can be aggregated over large numbers of students and can contain many variables that data mining algorithms can explore for model building.

1. Predicting students' future learning behavior by creating student models that incorporate such detailed information as students' knowledge, motivation, meta cognition, and attitudes;
2. Discovering or improving domain models that characterize the content to be learned and optimal instructional sequences;
3. Studying the effects of different kinds of pedagogical support that can be provided by learning software; and

4. Advancing scientific knowledge about learning and learners through building computational models that incorporate models of the student, the domain, and the software's pedagogy [19].

Data mining is a powerful new technology with great potential in information system. It can be defined as the computerized process of extracting useful knowledge and information including, patterns, associations, changes, trends, anomalies and significant structures from large or complex data sets that are unknown (Han and Kamber, 2001; Two Crows Corporation, 1999; Chen *et al.*, 1996). Many applications areas such as banking (Han and Kamber, 2001), retail industry and marketing (Han and Kamber, 2001; Edelstein, 2000), fraud detection (Chang and Lee, 2000), computer auditing (Teh *et al.*, 2002), biomedical and DNA analysis (Han and Kamber, 2001; Han, 2002; Feldman, 2003), telecommunications (Han and Kamber, 2001; Chang and Lee, 2000), financial industry (Han and Kamber, 2001). Data mining techniques is most used in higher learning institution. With the help of Data mining e-Governance can help in:

1. Superseding Administrative Delays in Education System
2. Bring in lucidity, responsibility and Timely declaration of process susceptibility that exist within School /higher/technical education system
3. Helpful in best possible uses of available resource, fund monitoring and forward planning Access enhancement of superiority Education in cyber space certification,
4. On-line ease of use of teachers/experts through EduSAT
5. On-line ease of use of Industry Experts to Engineering/Medical/Management Institutions
6. Training and empowerment of teachers to successfully use the new method of teaching, learning etc.

Some of the most important projects under NeGP, while promoting quality and collaborative education

1. SWAN
2. SDC/NDC
3. SSDG/NSDG
4. CSC Channel
5. MMPs
6. National Knowledge Network
7. Scheme such as ICT @ Schools etc.[20]

E. COMMERCE AND TRADE

Commerce is the Exchange of goods or services for money or in kind, usually on a scale large enough to require transportation from place to place or across city, state, or national boundaries[21]. Perception commerce is being analyzed based on four perspectives: communication, business processes, services, and real-time accessibility.

INTERNATIONAL TRADE ADMINISTRATION SERVICES

Our Services

- ▶ AD/CVD Counseling
- ▶ Advocacy
- ▶ Export Counseling
- ▶ Gold Key Matching
- ▶ International Buyer Program
- ▶ International Company Profile
- ▶ International Partner Search
- ▶ Market Research
- ▶ Platinum Key
- ▶ Report a Trade Barrier
- ▶ Safe Harbor Certification
- ▶ Steel Import Licensing
- ▶ Trade Compliant Filing
- ▶ Trade Fair Certification
- ▶ Trade Leads

The Business models meet in e-commerce are also presented, grouped by the type of transaction (Business-to-Business, Business-to-Consumer, Consumer-to-Consumer, Business-to-Govern) and by technologies (Peer-to-Peer, Mobile Commerce). The main determining factors for research activity are: budgetary constraints, level of detail of information, availability of information, energetic information needs data. In E-commerce According to statistics, turnover of E-commerce has reached 7.85trillion Yuan in china, up by 30.83% percent year-on-year, turnover of nets retail market has reached 1.3205 trillion Yuan, up by 64.7% percent year-on-year, the number of online shoppers have reached 247million people, up by 21.7% percent year-on-year, the number of online shops have reached 13.65 million[22].

Today's global economic landscape is defined by two main features -- the vast impact of the information technology revolution and the dramatic expansion of international trade. The Internet is redefining business models worldwide and creating new paradigms and economic transactions.

Former Governor James S. Gilmore, III, Governor of Virginia and Chairman, Federal Commission on Internet Taxation (1999). Data mining provide information for government and business to take decisions. For example the government web site provide many information online related to commerce

1. Information on exports and imports
2. Department of Commerce
3. Forms by Central Board of Excise and Customs
4. IceGate E-commerce portal
5. Special Economic Zones in India
6. India in Business portal
7. Wholesale Price Index of Office of Economic Adviser

8. Information on India and WTO etc. [23]

F. TOURISM

According to Macintosh and Goeldner (1986) tourism is "the sum of the phenomena and relationships arising from the interaction of tourists, business suppliers, host governments and host communities in the process of attracting and hosting these tourists and other visitors" [24]. Tourism is an enormous income originator due to an increased demand for its services. Data mining techniques for investigation and examination of large quantities of data in order to discover meaningful patterns and rules. Information technology was initially viewed by the tourism industry as a back-office function that supports the finance and accounting areas. According to World Travel and Tourism Council, travel and tourism represents approximately 11% of the worldwide gross domestic product (GDP) (Werthner & Ricci, 2004).

The industry has advanced far beyond this view during the past decade. As information is vital for tourism industry, effective use of Information Technology is necessary. Information System regarding tourism activity should have some characteristics. It should collect, select and process information that is internal to the tourism activity coming from entities related to this sector such as National Tourism Agency. Tourism is an information-based business where there are two types of information flow. One flow of information is from the providers to the consumers or tourists. This is information about goods that tourists consume such as tickets, hotel rooms, entertainments, and so forth. The other flow of information which follows a reverse direction consists of aggregate information about tourists to service providers.

G. REVENUE

Revenue plays a significant role in a business growth without the support of Revenue any business cannot make a profit and stay feasible in the long run. Data mining is an important technique for analyzing and extracting new insights and knowledge from the exponentially rising store of digital data .In other words we can say data mining can be used to accomplish the company's objective to increase revenues from its accessible customers by extracting patterns, trends and rules from data warehouses to evaluate, proposed business strategies, which will improve competitiveness, increase profits, and transform business processes. It is used extensively in

marketing to improve customer retention, cross-selling opportunities, campaign management, market channel, and pricing analysis and customer segmentation analysis.

With the help of data mining companies can gather data from the user and their website and storing data in database. Analytical analysis is a form of data mining that combines historical data with assumptions about future conditions to predict outcomes of events, such as future product sales or the probability that a customer will default on a loan. It is also used to upgrade occasional customers into frequent purchasers by predicting what products they will buy if offered an appropriate incentive [25]. It is useful in analyzing changes over a period of time to forecast future performance.

Data mining can bring to a close relationships among "internal" factors such as product positioning, price or staff skills, and "external" factors such as economic indicators, competition, and customer demographics etc. -by mining demographic data from comment or warranty cards, a company could develop products and promotions to appeal to specific customer segments. It can be use in predicting the factors that cause customers to leave a business and go to a competitor.

V. DATA WAREHOUSING IN E-GOVERNANCE & PROJECTS

Andhra Pradesh is the one of the best state of India. Andhra Pradesh Government implemented a data warehouse of land and person data of 60 million populations to enable well informed, timely and accurate policy decisions by the Government officials across various departments. Involved an outlay of Rs. 5 crores (US\$ 1 Million) to address the total State data. The Centre for Development of Advanced Computing (CDAC) in collaboration with the Andhra Pradesh. The main objective of this effort is to organize the Multipurpose Household Survey (MPHS) data and the land records data of the AP Government into a meaningful information warehouse for enabling the decision makers in making informed decisions and accessing their impact over the intended section of the population. The Government of Tamil Nadu has unveiled construction of as many as 47 storage warehouses across the state for agriculture produce. The Tamil Nadu Government plans to invest Rs 500 crore to set up these godowns with 4, 33,500 tons capacity, at 47 places. Fifteen storage godowns of 125,000 tons capacity will be constructed through the Tamil Nadu Warehouse Corporation. With this, the storage capacity of the Tamil Nadu Warehouse Corporation will increase from the existing 633,000 tons to 758,000 tons. The state government is planning to construct at least 1,044 storage

godowns in the current FY 2013, through co-operative societies, at a cost of Rs 140.89 crore. The computerization of logistics involved in transporting goods from godowns to fair price shops will be done at a cost of Rs 50 crore. The state has set up a committee for the purpose, led by the chief secretary. The state government also plans a stemcell research centre for livestock in Tamil Nadu Veterinary University with an investment of Rs 6.48 crore[26]. A large number of e-Governance applications are already in operation in most of the states and at the centre.

VI. CONCLUSION

Data warehouse concepts are adopted in many government sectors like healthcare, agriculture, education, social security fund, pollution control, electronic voting, rainfall prediction, customer complain, road traffic violation, crime control, etc. Use of efficient Data Warehousing and Data Mining techniques may surely enhance government decision making capabilities. A nationwide Data warehouse model especially for Indian context has been proposed. An agriculture data has been taken and mined to analyze the climatic and weather changes which affect the yield of the crop. This can help in predicting the climatic conditions so that better precautions can be taken to improve the agricultural output. There are some successful factors who will help in good e-governance like Political commitment, Effective administrative leadership, Effective administrative leadership, Effective handling of HR issues, Involvement of staff at design stage, Innovative funding strategy and revenue model, Appropriate administrative structure, Common infrastructure and database creation ,Training & Motivation

The efficiency of Government can be increased by using the Data Warehouses and Data Mining. Because Governments deal with large amount of data. To ensure that such data is put to an effective use in facilitating decision making, a data warehouse and Data Mining techniques are used over the historical data. It permits several types of queries requiring complex analysis on data to be addressed by decision makers. In this paper the focus on the applications and use of Data Warehousing & Data Mining in all the dimensions of E Governance like Government to Citizen (G2C), Government to Government (G2G) and Government to Business (G2B).

REFERENCES

- [1]. Bedi, K., Singh, P.J. & Srivastava, S. (2001) government net: new governance opportunities for India. New Delhi: Sage.
- [2]. http://portal.unesco.org/ci/en/ev.php-URL_ID=4404&URL_DO=DO_TOPIc&URL_SEcTI ON=201.html

- [3]. <http://go.worldbank.org/M1JHE0Z280> (extracted on 18.08.2008)
- [4]. <http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CBsQFjAA&url=http%3A%2F%2Fsis.mu.ac.ke%2Findex.php%2Fresearch-publications%2Fstaff-research-andpublication%2Fcategory%2F10getrudentulo%3Fdownload%3D49%3Aegovernment&ei=SbuaU4ryMoKfKAXtk4CYAQ&usg=AFQjCNE9U2U3EFrNxGc64qTf031zHZ0ZsA&bvm=bv.68911936,d.dGI>
- [5]. http://thesai.org/Downloads/Volume4No1/Paper_22Studying_Data_Mining_and_Data_Warehousing_in_Different_e-Learning_system.pdf
- [6]. <http://dictionary.reference.com/browse/data+mining>
- [7]. <http://www.britannica.com/EBchecked/topic/1056150/data-mining>
- [8]. <https://www.statsoft.com/Textbook/Data-Mining-Techniques#mining>
- [9]. <http://www.zentut.com/data-mining/advantages-and-disadvantages-of-data-mining/>
- [10]. <http://www.ustudy.in/node/6653>
- [11]. <http://www.dwbiconcepts.com/data-warehousing/18-dwbi-basic-concepts/1-what-is-data-warehousing.html>
- [12]. <http://www.1keydata.com/datawarehousing/data-warehouse-definition.html>
- [13]. <http://www.investopedia.com/terms/d/data-warehousing.asp>
- [14]. <http://www.iimahd.ernet.in/egov/ifip/nov2005/article2.htm>
- [15]. <http://www.sciencedirect.com/science/article/pii/S1319157812000390>
- [16]. <http://www.slideshare.net/Tommy96/data-mining-applications-in-healthcare>
- [17]. www.unapcict.org/ecohub/current-e-governance-scenario-in-healthcare-sector-of-india
- [18]. <http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=0CD0QFjAC&url=http%3A%2F%2Fwww.ijcaonline.org%2Fvolume15%2Fnumber7%2Fpxc3872623.pdf&ei=MsmnU5eCMNG9ugTrrIH4Dw&usg=AFQjCNHvIwIyVhzjbEVevBr-AVZT9Fva0g&bvm=bv.69411363,d.c2E>
- [19]. <http://edtechreview.in/dictionary/394-what-is-educational-data-mining>
- [20]. <http://www.ducc.du.ac.in/negpworkshop/golo-k-kumar-simli-2.pdf>
- [21]. www.businessdictionary.com/definition/commerce.html
- [22]. http://www.sersc.org/journals/IJUNESST/vol7_no1/2.pdf
- [23]. <http://india.gov.in/topics/commerce>
- [24]. <http://www.prm.nau.edu/prm300/what-is-tourism-lesson.htm>
- [25]. <http://iaap.activeboard.com/t36924157/q7-your-company-wants-to-increase-revenues-from-its-existing/>
- [26]. <http://www.projectstoday.com/News/Tamil-Nadu-Govt-unveils-warehouses-in-the-state>
<http://www.performance.gov.in/sites/default/files/departments/agriculture-cooperation/Standing%20Committee%20Reports%202013-14.pdf>