

# Importance of Data Mining Spatial in Recent Days

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## Abstract

*Data mining is essential this helps brands to stay in the running and make profitable business; a strong data mining process ensures a smooth path of an organisation in achieving several competitive advantages. This process is nothing but assessment of larger or big data with the assistances of suitable technique or software. Professionals use their skills and expertise to gather pattern from the large data in to anticipate the purchase behaviour of the customers. As consequences this impacts the effectiveness of the organisation and helps the forms to implicate suitable marketing strategy to gain the attention of the customers. It is also true that there are some challenges in the entire process and needs to handle with expertise and skills. The issues can be mitigated by focussing on the infrastructure of the organisation in terms of skills of the employees and the strength of the organisation. This helps the companies to effectively carry out all the processes related to the data mining and achieve competitive edges.*

## Keywords

*Big data, brands, business, Data mining.*

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## INTRODUCTION

Data mining is considered as the process that is utilised by the companies in order to transform the raw data into useful information. With the assistance of software, forms focus on the pattern in a large set of data and this eventually allows companies to gain valuable information about their customers. Data mining helps the companies to effectively incorporate suitable strategies by looking into the requirements of the company. In simple words, data mining can be exploited as the process that helps the companies to analyse a large amount of data or information in order to find the important trends [1]. It is essential for the companies to identify the needs of the customers as this helps the companies to stay in the running and maintain their competitiveness in the marketplace. In addition, this help-s the companies to identify several aspects related to their business to secure their market place.

Data mining includes several setbacks from exploring and evaluating big data sets to a meaningful pattern and information. This information are further used in several ways, for example this can be utilised as database marketing, identifying fraud, filtering spam emails, effective risk management and so on. The process commonly has five steps and each and every step is capable of allowing companies to stay in the competitive world [2]. The first step inclusive in this process is the collect of data and loads all the information into the data storage. After that, the companies control or manage all the data with the help of two methods such as cloud storing or in-house server. With the help of experts of information technology or business analytics or management team the raw data is evaluated. Afterwards, application software helps the professional to sort the big data depending on the outcome. The final step is nothing but the shearing of the data in a most effective and seamless format like graphs or tables.

In the case of data mining, the process evaluates the interrelation and pattern in the data set by looking into the requirements of the company. It is evident that the firms use this process or the technique to create class information. In other words this helps companies to identify the requirements of the marketplace and in turn allows the companies to stay ahead from the market competitors. On the other hand, this process can be utilised to indemnify clusters of information by focusing on the logical interrelation or focus on the alliance and sequential patterns in order to draw a conclusion related to the trends in terms of behaviour of the customers [3]. Storing or warehousing is a critical aspect in ensuring successful data mining processes. With the assistance of data storage or warehouse, Firms spin off segments of information for particular users to evaluate the utilisation of the software.

It cannot be denied that the most essential part of a business is revenue generation. This helps the companies to stay in the running in the competitive world by maintaining their effectiveness in the global marketplace. Data mining helps the companies to boost their sales by identifying the needs of the customers. It is essential for the visitors to look into the requirements of the customers and this in turn helps the companies to gain the loyalty of the customers. Customer loyalty is essential for the business as this helps the companies to sustain in the global marketplace by strengthening their customer base [4]. In addition, Data mining process also helps the companies to incorporate sustainable marketing strategies by looking into the needs of the company itself and the needs of the target audience. Incorporation of suitable marketing strategy is essential for the companies as this allows the companies to gain the attention of the customers. An effective marking strengthening is capable of boosting revenue of the companies and this in turn helps the companies to sustain in the competitive corporate world.

## MATERIALS & METHODS

Methods are essential in case of carrying out an effective and successful study. Selection of appropriate data helps to ensure success of the study. With the assistance of the qualitative research approach the entire work has been conducted. This has been Chosen by looking into the requirements of the present study. In addition, crosses-sectional research design as also been incorporated for the sake of the success of the study. The key factor of cross-sectional design is that this helps to evaluate all the aspects of the subject matter and therefore ensure success in accomplishing the study [5]. Apart from that, the overall work has been carried out with the help of a secondary qualitative research method.

Secondary data has been gathered to conduct the entire work effectively and successfully. In order to secure the success all the data related to the subject matters has been from reliable sources. The reliability of the study has been maintained by ensuring that all the data that has been taken from the peer-reviewed journals and articles. On the other hand, it has been taken care of that all the data has been taken with the help of secondary sources. Primary sources have not been used in this research. In addition, it has ensured that data has only been gathered from peer-reviewed journals, articles, authentic websites to maintain the authenticity and the ethical approaches.

## RESULTS

### Advantages of the data mining

Customer service is one of the essential aspects of business and this is capable of determining the future of the organisation. This helps the companies to improve their market image to a great extent. With the help of effective customer service companies gain customer satisfaction and loyalty. It is true that a happy customer is an asset for the company as satisfied and happy customers are more likely to refer their friends and families [6]. As a condescending example, this helps brads to boost their revenue and enhance their market reputation. Data mining helps the companies to identify the requirements of the purchasers and this review facilitates greater customer satisfaction and ultimately facilitates greater customer loyalty.

Data mining helps the companies to incorporate suitable strategies by focusing on the requirements of the customers and the needs of the business itself. Data mining is a great option to gather information about the customers and their purchase behaviour. This in turn helps the firms to implicate appropriate marketing strategies to gain the attention of the customers. Apart from this this information also helps the firms to boost their sales to a great extent. It is evident that whenever companies focus on the needs of customers and work effectively to fulfil their needs this eventually leads to greater sales [7]. Not only that, the data mining process also helps the companies to identify fraud. This eventually allows the companies to effectively carry out all business activities

without any interruption. With the assistance of social platforms firms can gather information about the target market and this in turn helps the firms to improve their services and products quality.

### Concept of spatial data mining

Spatial data mining is a type of incorporating the data mining on the spatial models. This particular factor needs particular strategy and sources to gain the geographical data within the valid and factual paradigms. Later on, the spatial data helps an individual to bring betterment in the assumption about human intention and helps to understand what sorts of variables might create impact over the choices and intention of an individual. With the help of performing the analysis which is based on the nature of spatial data on the groups, an individual can assure that the neighbourhood is accessible and usable for each and every human being. Generally the spatial data is any sort of data that intends to reference a particular geographical zone or location in a direct or indirect manner [8]. Also, sometimes this spatial data has been known as geospatial data or geographic insights as it serves the location oriented information of an individual.

A spatial database helps to save a massive amount of space oriented data which involves maps, medical imaging records or pre-processed remote sensing and VLSI chip design data as well. This type of database consists of several types of features which are different from the relational data from every aspect. The spatial database usually brings topological and distance insights which have been often implemented in the geometric computation and representation of the spatial knowledge strategies [9]. Also, spatial data mining intends to describe the extraction of the spatial database and spatial relationship within a certain manner. Such kinds of data mining seek the summation of data mining with such technologies which are based on the spatial data. A core challenge of spatial mining is the expansion of effective spatial data mining strategies and the reason behind is to serve a massive amount of spatial data.

In the present situation, for any sort of company, it is important to understand the purchase behaviour of the employee to maintain a massive amount of profit at a certain pace. In online shopping, in its nascent phase, spatial data mining is an important factor in the present existing marketplace [10]. The consumer behaviour is an analytical periphery which is related with consumer buying intention with the consumer playing the significant role of buyers and the consumers. Also, the consumer behaviour involves communities or firms about the procedure of choosing, protecting, implementing and disposing the products, services and consumer experience which can be able to satisfy the needs of the consumer within a particular product.

### Importance of spatial data mining on the consumer purchase behaviour

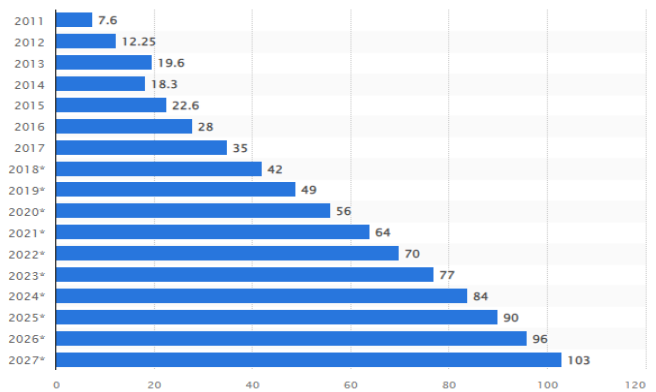
Nowadays, spatial data mining is a key to fetch the customer behaviour and trace the needs of the customers in an effective manner. With the help of spatial data mining, the

companies can be able to connect with the purchase intention and understand the needs of the consumers while buying a product of a company. The highly desirable tools of data mining help to showcase the purchase intention of the consumer towards buying a product or experiencing a service. Also, the vast range of the spatial database helps to detect individual nature of consumer purchase behaviour and works effectively towards the consumer retention for a particular company [11]. This eventually helps the companies to establish greater relationships with the customers by providing better service to the customers. It is evident that understanding purchase behaviour of the customers leads to greater market image and this also helps the companies to stay in the running in the global marketplace.

It can be said that data mining is a critical and Integra part of business in this 21st century. Apart from that this cannot be denied that this process is relevant and has a significant role in this modern world. Identification of the purchase behaviour of the customers are essential in these modern days to ensure the business process is effective and capable of providing competitive advantages. In simple words, this process helps firms to maintain their efficiency in terms of sales and revenue by identifying the purchase behaviour. It is evident that whenever companies identify the purchase behaviour of the customers this helps brands to influence their behaviour with the help of attractive deals and offers [12]. As a consequence firms gain competitive advantages and successfully stay ahead from the market competitors in terms of sales and customer base. In order to stay in the global marketplace it is essential for the companies to focus on their target market and continuously evolve their business to maintain the effectiveness and secure the future.

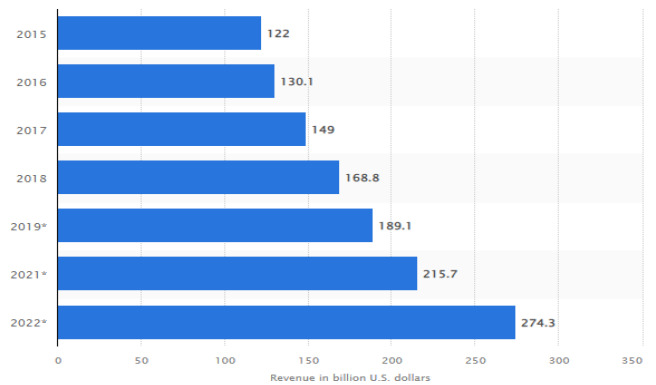
**Market size of big data and importance of data mining in today's world**

In this present day it has become essential for the companies to gather large amounts of data about the customers and their purchase behaviour to stay in the running in the competitive business world. The tendency related to using big data and data mining is increasing day by day and it is expected to grow rapidly. The market size is expected to expand to 103 billion US dollars by the year 2027 [13]. This signifies the importance of gathering data about the customs and their requirements. It is evident that the market size will increase in upcoming years as this helps the brands to maintain their effectiveness on the marketplace.



**Figure 1:** Big data market size revenue forecast worldwide from 2011 to 2027

It can be anticipated that the growth of the market place will help the companies to boost their sales and at the same time this will allow the firm to establish great realism with the customers. It is evident that without an effective and emotional bond firms cannot stay in the long run. In 2018 the global big data and business analyst market generated 168.8 billion US dollars and this will eventually grow to 215.7 million in the year 2022 [14]. This signifies the importance of the entire process of digital data collection and data mining for the sale of effectiveness of business.



**Figure 2:** Revenue from big data and business analytics worldwide from 2015 to 2022

It is evident that big data collection and data mining helps businesses to boost sales and the revenue of the market is increasing. Day by day the tendency to utilise this process is increasing and this signifies that it has a direct impact on the companies as well as on the customers. Data mining allows the first to identify the patterns and trends from the bid data and this in turn increases sales and reputation of the firms. This helps firms to anticipate the demand of certain products and therefore ensure availability of the products [15]. On the other hand, this helps businesses to sustain in the competitive global marketplace by strengthening the customer base and boosting revenue. Technology has a huge role in assuming the customer's purchasing behaviour and their requirements. Advanced technologies help the companies to effectively gather information with the assistance of approach and suitable platform and proactive is valid and reliable data.

That in turn helps the companies to stay in the running and ensure success in business operations. Hence this can be understood as the reason behind the expansion of the market size of big data and business analytics.

### **Large spatial database and its challenges**

Large spatial database; also known as the geospatial data, can exceed the capacity of common usage of computing systems. Geospatial data has much capacity which is used in betterment in data variation, velocity, veracity and in maintaining volume [16]. There are some problems in the processing of data with these results. Data extraction may cause many issues in terms of weather disturbances, any types of wind direction and proper visualisation. In this concern, satellite imagery is also a type of geospatial data source. On the other hand, drone platform, geosocial new working services can also be some major sources of taking up data. There are various types of geospatial data sources such as remote sensing, social media platforms, surveying and mapping and internet of things (IoT) [17]. These all are allowed to the usage of electronic sensors, video operations, human sensors which give better results on database appearance.

Geospatial data are mainly measuring some pixel value in satellite imagery, though this may face uncertainty in fluctuation of different volume. The uncertainty of geospatial data can often be faced with lack of methods and specification of measurement [18]. Many large databases have faced many challenges due to lack of proper scientific process and proper sampling. This large data source in social media platforms can face issues with several streams in which the sensor of photography has a better role. Lack of skill cannot make proper streaming through social media platforms. Hence, there should be better sensor fields with moderate-volume data streaming which can facilitate in fixing location. In the case of analytical visualisation, sensors cannot make proper streamlining. On the other hand, often the firm faces issues related to maintaining the quality of data and this impacts the overall process to a great extent. Apart from that, analysts often fail to maintain the standards and this often uncertainty the complexity of the process. It is evident that by focussing on the organisational strength in terms of employee skills and expertise and infrastructure of the organisation.

### **DISCUSSION**

By looking into the above discussion it is clear that in the present day data mining has a great impact on the effectiveness of the company. This helps the firms to stay in the running in the highly competitive business world. At the same time this allows the firms to impact their market reputation to a great extent. This technique helps the companies to identify their needs of the target market. This eventually helps the business to serve better to the customers and eventually ensures success in the long run. It cannot be denied that this process is capable of establishing great bonds

within The customers and companies. That ultimately allows firms to boost their sales by gaining customer satisfaction and their loyalty. Both aspects are crucial for the companies as this helps the brands to secure their places in their forthcoming years.

In the present days, data mining is essential for the firms as this helps the brands to identify purchase behaviour. Identifying purchase behaviour of the customers are extremely important criteria for the companies to ensure greater sales. This in turn allows businesses to secure their place in the marketplace and at the same time this helps brands to ensure that the customers are satisfied. Whenever companies identify the needs the customer this in turn allows brands to provide best services and at the same this helps allows brands to improve the quantity of the product

Not only that data mining process helps businesses to implicate suitable strategies that are robust and effective in terms of enhancing sales and customer base. Better sales and expanded customer base both are extremely essential for the companies as this not only secure the position in market but at the same time this signifies the effectiveness of the organisation.

Data mining helps the companies to sustain in the competitive world by maintaining their effectiveness in the company. But there are some issues that have been facing by the companies to use this technique and gain ideas about the customers. Most of the time companies face issues due to lack of expertise and these results in program failure. On the other hand, some of the time organisations do not possess the necessary employee support in terms of skill of the employees. This impacts the organisation's effectiveness and in turn leads to systems failure. Apart from that, often the lack of skills and expertise of the employees leads to complexity and this in turn impacts the revenue and other essential aspects. Most of the time firms face issues due to the lack of proper infrastructure and lack of knowledge regarding the implementation and analysis of the software. As a consequence companies fail to identify the patterns in the big data.

Despite that it is evident that data mining spatial is capable of establishing great relationships with the customers as this helps companies to provide veterans services and helps firms to stay ahead from the market competitors. This process helps firms to understand the demands of the marketplace and at the same time helps organisations to influence the purchases behaviour of the customers with the help of appropriate marketing strategies. At the same time this helps the companies to undertake business objectives to stay a few steps ahead from market competitors. It is evident that this process allows businesses to maintain their competitiveness in the marketplace and ensure greater profit and improved market reputation. Market reputation on the other hand helps the companies to gain the attention of the new potential customers. This ultimately secures the position on the competitive market and ensures greater revenue and efficiency.



## CONCLUSION

In this report all the aspects related to the importance of spatial data mining have been analysed critically. In order to accomplish the study it has been ensured that all the aspects regarding the Data mining have been assessed and from the assessment it is clear that this process has the ability to help the company. The discussion has effectively and successfully highlighted all the aspects of the utilisation of data mining spatial process. From the assessment it is clear this process has the capability to gain data related to the customer's behaviour. This in turn helps the companies to set objectives for carrying out all the business related activities seamlessly. Apart from that this also helps the companies to stay in the running in the competitive world with the help of strong customer base and greater revenue. Whenever companies gain an overview about the needs of the customers this in turn allows the firms to provide best services to valuable customers to gain their satisfaction. On the other hand, greater customer satisfaction leads to customer loyalty and in this competitive world customer loyalty has a significant impact on the upgradation of revenue and market image.

This study has been solely focused on the various aspects of the data mining process and its importance on organisational growth. Therefore, it is clear from the overall assessment of the subject matter that this process has a great impact on the business as these influences the sales to a great extent. It cannot be denied that sales are not essential elements of an organisation and this represents the effectiveness of the organisation in the marketplace. The study has also identified the issue related to the implementation of this process and at the same time this have understood the ways to mitigate the issues to enjoy the advantages of this process.

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