



# Data Mining

## 'How Data Mining Supports Business Decisions'

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Enabling MSMEs to select the right technology packages for their  
businesses.*



# DATA MINING TO SUPPORT DECISIONS



## What is Data Mining?

Data mining is a process of discovering patterns in large data sets such as customer behavior, financial trends, employee productivity, sales and inventory movement.

## How does it help MSMEs?

- SMEs can learn more about their customers and develop more effective strategies related to various business functions and in turn leverage resources in a more optimal and insightful manner. This helps businesses be closer to their objective and make better decisions.
- It is useful for database marketing, risk management, improving operational efficiency, detecting financial trends among other business improvement options.
- For example: With data mining, a retailer could manage and use point-of-sale records of customer purchases to send targeted promotions based on an individual's purchase history. The retailer could also develop products and promotions to appeal to specific customer segments based on mining demographic and sales data.

## What are the hidden patterns and predictive models of behaviour?

There is power in Turning raw data into useful actionable information.

Good data mining begins with Identifying the available data set. Prepare data ensuring maximum accuracy and completeness. Model and evaluate data looking for patterns and trends. Present data findings. Define new and improved business decisions based on data findings.



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Good data training programs for SMEs are specifically designed and customized for non-technical business professionals who see the strategic value of data.

They aspire to be data driven in their approach but end up spending countless hours crunching numbers in Excel and other traditional reporting tools.

Data mining workshops are also for managers who wait on monthly reports but prefer real-time information to make point in time decisions.

Participants of good data workshop sessions are usually able to obtain deep visibility and key insights to identify trends, patterns and abnormalities in their data quicker.

Participants need to be provided with hands-on exercises and the opportunity to develop and present highly impactful cases that will have significant influence on the top and/or bottom line of their respective organizations.

## Popular & Successful Companies Utilizing Data Mining:

- Amazon
- Netflix
- Miniclip
- American Express



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## Data Mining Examples:

E-commerce websites use Data Mining to cross-sell and up-sell through their websites. One of the best in data mining is Amazon, who uses techniques to get more customers into their eCommerce store and converting into sales.

Service providers like mobile phone companies use Data Mining to predict the reasons when a customer leaves. They analyze billing details, customer service interactions, and complaints made to assign a customer a probability score and offers incentives for them to stay.

Data Mining techniques help retail companies identify and arrange most sellable items in the most attentive positions. It helps store owners develop offers to encourage customers to increase spending.



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## 5 Data Mining Techniques that Can Help Businesses Garner Actionable Insights.

### 1. Classification Analysis

Data is classified into different sets in order to reach an accurate analysis or prediction. An example of application or classification analysis is when banks try to determine who should be offered a loan. This can be done by using IF/THEN analysis: If the age is more than 20 years and income is equal to more than \$50,000 per month then they would qualify.

### 2. Association Rule Learning

This largely surrounds forecasting customer behaviour. The technique helps identify relationships between different variables and establish hidden patterns in the data. This data mining technique is widely used for analyzing sales transactions. An example is in online retail when a user buys a product and is likely to buy a related product for a consequent need.

### 3. Anomaly or Outlier Detection

This technique digs into the outliers in a data set. Outliers/anomalies are patterns that do not match expected behaviour. When an event that does not conform to a predefined pattern occurs, data analysts remove it from the remaining data set and they try to find out what caused it to occur.



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## 5 Data Mining Techniques that Can Help Businesses Garner Actionable Insights from all the Data. (cont'd)

### 4. Clustering Analysis

In this case, data objects are grouped in clusters on the basis of similarity. The idea is to group data objects in such a manner that the degree of association is maximal within each cluster and minimal outside it. For example, clusters of symptoms such as paranoia, schizophrenia etc. need to be correctly diagnosed in psychiatry for the right therapy to be started.

### 5. Regression Analysis

In this technique, there is a response variable and one or more than one predictor. The predictor variable(s) are independent and responsive is dependent. This technique is used for studying how changing the value of predictor can alter the value of responsive variables. It can be used to predict events yet to occur. For example., Insurance companies use regression analysis to find out how many people will be victims of theft.



# RESOURCES



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- Website: <https://bibrainz.com>

## 5 Data Mining Techniques Businesses Need To Know About

- <https://towardsdatascience.com/5-data-mining-techniques-businesses-need-to-know-about-20fd723800b2>

## 10 Ways Data Mining Can Help You Get a Competitive Edge

- <https://neilpatel.com/blog/data-mining/>

## Data Mining in Business Analytics

- <https://www.wgu.edu/blog/data-mining-business-analytics2005.html>

## 5 Real Life Applications of Data Mining and Business Intelligence

- <https://www.matillion.com/resources/blog/5-real-life-applications-of-data-mining-and-business-intelligence>

## Application of Data Mining in Business Management: Basic Concepts

- [https://www.youtube.com/watch?v=UxSZ\\_sRRcUA](https://www.youtube.com/watch?v=UxSZ_sRRcUA)

## Data Mining Tutorial For Beginners

- <https://www.youtube.com/watch?v=NGnst2LDIUo>

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