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# Effective Business Decisions Using Data Analysis

Ref.: BD-1101

Location: Amsterdam, Netherlands



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## Introduction

Every professional strives to make quality decisions. Quality decisions result from a careful and thorough evaluation of relevant information. Often, such information is generated through statistical manipulation of data. Still, only a few professionals possess the quantitative reasoning skills to meaningfully and validly interpret statistical findings themselves or question the interpretations given by others.

The lack of quantitative analytical skills can limit a professional's effectiveness in making quality decisions by taking business decisions using a data analysis course.

This business decision-using data analysis program aims to develop an appreciation of the role of quantitative methods in management decision-making and, thereby, empower professionals with additional decision-making skills.

## Targeted Audience:

- Professionals in management support roles
- Analysts who typically encounter data/analytical information regularly in their work environment
- Those who seek to derive more excellent decision-making value from data analytics

## Course Objectives

**At the end of this business decisions using data analysis course, the participants will be able to:**

- Appreciate the role of Data Analysis as a Decision Support tool
- Explain the scope and structure of the discipline of Statistics
- Understand the importance of data quality in data analysis
- Select an appropriate Data Analysis methodology to apply to specific management situations
- Apply a cross-section of Data Analysis tools and techniques
- Meaningfully interpret statistical output to inform decision-making
- Critically assess statistical findings with confidence
- Interact meaningfully and with confidence with Data Analysts
- Initiate with confidence in their Data Analysis projects
- Learn techniques to support strategic initiatives

## Targeted Competencies

- Discussions on applications of data analytics in management
- The importance of data in data analytics
- Applying data analytical methods through worked examples
- Focusing on management interpretation of statistical evidence
- Integrating statistical thinking into the work domain

## Course Outlines

### **Day 1: Setting the Scene and Observational Decision-Making**

- Setting the Quantitative Scene
- The Decision Support Role of Quantitative Methods in Management
- Thinking Statistically about Applications in Business Practice
- The Elements and Scope of Quantitative Management
- Data and the Importance of Data Quality

### **Day 2: Using Excel to Paint a Picture of Your Data**

- Summary Methods Using Tables and Graphs to Profile Data
- One-way, Two-way, and Multi-way Pivot Tables
- Graphic Displays and Breakdown Analysis
- Numeric Descriptors
- Central (and non-central) locations Dispersion Distribution Shapes
- Graphical summary using Box plots

### **Day 3: Statistical (Inferential) Decision Making – Harnessing Uncertainty**

- Using sample evidence to address management issues through statistical inference
- How to measure and quantify Uncertainty (using Probability Distributions)
- The importance of Sampling

- Statistical Decision-Making methods
- Approaches: Confidence Intervals and Hypothesis Testing
- Techniques: Z- and T-statistics, Analysis of Variance, Chi-Square
- Addressing Practical Management Issues
- Estimation Testing for Differences Multiple Sample Comparisons

## **Day 4: Predictive Decision Making – Using Models to Build Relationships**

- Statistical models exploit statistical relationships between measures to prepare forecasts and make predictions.
- The Value of Statistical Modelling
- Graphic Displays and Breakdown Analysis
- Modeling Approaches
- Regression Models, Time Series Analysis Autoregressive Models

## **Day 5: Data Mining – A Brief Overview**

- An Overview of Data Mining
- Definition of the Data Mining Process Data Preparation
- Data Mining Functions
- Prediction / Estimation / Classification / Descriptive
- Purpose Methodology Interpretation Likely Applications
- Cluster Analysis Discriminant Analysis
- Logistic Regression Classification Trees Neural Networks

## Decision Analysis for Management Judgement

- Using Decision Models to structure/evaluate complex decision scenarios
- Multi-Criteria Decision Modelling (Illustrations of Two Practical Tools)
- SMART (Simple Multi-Attribute Rating Technique)
- AHP (Analytical Hierarchy Process)



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