Data Collection Techniques

INTRODUCTION

- There is a common saying that your results can only be as good as the data you collect. Companies are relaying more and more on analytics and data driven decision management for their planning, forecasting, inventory management, supply chain management and strategy development.
- The abundance of data also makes it difficult to make unbiased decisions, complexity of the mathematical models makes the people reluctant to question the decisions and therefore, no matter how the well-intended and robust models we have they are still fully dependent on the quality of data they receive. The data quality depends on the techniques we use to collect this data, and to be able to distinguish different types of data we collect.
- This Data Collection Techniques training course will highlight the common tools and techniques used to collect the data, dispel the myths of data quality and teach the participants how and when to use different techniques, the adequate number of samples they need to collect. Also, the participants will be provided with the samples of data collection plans, as well as the insight into data collection from automated data collection systems as well as modern technologies available for data collection through the use of online monitoring systems.

This training course will highlight:

- How to Create a Data Collection Plan?
- Determine Adequate Sample Size
- Biases and Common Errors that can be Present in the Data Collected
- Big Data Concepts
- The Difference between Primary and Secondary Data
- The Ways to Collect the Data
- Methods of Collecting the Data in Real Time

OBJECTIVES

- The objective of this Data Collection Techniques training course is to provide participants with the adequate knowledge of the techniques of data collection, ranging from interviews, surveys, observations, focus groups to the Big Data collection and warehousing. The delegates will get the insight into the ways of ensuring the data quality, and understanding the ways to remove or mediate the errors in data collected.

At the end of this training course, you will learn to:

- Understand the need for a data collection plan
- Differentiate between the primary and secondary data
- Calculate the adequate number of samples
- Define and apply the data quality checklists
- Understand the properties of Big Data
- Recognize the benefits of Real-time data collection methods
- Understand the issues of privacy while conducting a data collection

TRAINING METHODOLOGY

- This Data Collection Techniques training course adopts a problem-based learning approach, where the participants will be presented with different methods of data collection, the benefits and downsides of different techniques, as well as the preparation and application of the data collection plan, methods on how to conduct interviews, how to develop and conduct surveys and how to avoid biases while collecting the data. Automated methods of data collection will also be presented. Delegates will also get the insight into data collection for different industries, from Supply Chain management and use of RFID for inventory and transport planning and management to use of cell phone data for traffic and transport planning.

ORGANISATIONAL IMPACT

- The organizations make a thousand decisions every day, and these decisions can range from a simple office furniture arrangement to the strategic decisions of new product development or production improvement.
- The abundance of data makes the organizations focused on data driven decision making, and the focus is quite often on complex and robust algorithms, while the data quality is sometimes neglected resulting in inadequate or sub optimal decisions. Based on the paradigm that the results are only as good as the data you acquire this training course teaches the participants on how to avoid the pitfalls and myths of data collection; as a result of sending their employees on this training course, organizations can expect to benefit from:
- Ability to first identify the goal of gathering the data
- Understanding the actual number of samples to collect for optimal decisions
- The knowledge of where and when they can use secondary data
- Improve the understanding of relation between the data and the models

PERSONAL IMPACT

- Participants will each gain direct insight into the ways data is collected, what techniques are appropriate for specific business needs, and how to conduct specific data collection based on the data collection goal and selected technique; specifically, delegates will acquire:
- The knowledge on how to determine the goal of data collection
- The structured way of creating a data collection plan
- Insight into the different data techniques and their area of application
- The understanding on how to determine the acceptable errors in data collected
- Value that the data analytics brings to business decision-making processes
- Framework for data integration
- When and how to use Big Data
- Insight into the automated data collection and real time monitoring
- How to apply the knowledge in real-time situations?

WHO SHOULD ATTEND?

- This Data Collection Techniques training course has been designed for professionals whose jobs involve the data gathering, data analysis, decision making, optimization, as well as anyone from the companies which make decisions based on scientific methodology or want to become one.

This training course is suitable to a wide range of professionals but will greatly benefit:

- Operation Managers
- Project Managers
- Financial Managers
- Data Analysis
- Urban Planners
- Transport and Traffic Engineers
- Supply Chain Managers
- Risk Managers
- Plant Managers
- Production Planners
- And everyone else who wants to learn how to gather high quality data

Course Outline

The Importance of Data Collection

- Historical Context
- Data Sources
- Defining the Data Collection Plan
- Determining the Sample Size Required
- Project Charter
- Common Sources of Data

Collecting Data

- Most Common Data Collection Techniques
- Conducting an Interview
- Using Questionnaires and Surveys
- Observations and Focus Groups
- The Aspects of Big Data
- Automated Techniques for Data Collection
- Data Management Strategy

Examples of Use of Data Collection Techniques

- Planning and Conducting an Interview
- Planning and Creating a Survey
- Determining Survey Scales
- Conducting Experiments
- Plan and Use (electronic) Surveying Tools
- Sources of Secondary Data
- Use and Referencing of Secondary Data

Big Data Concepts

- Big Data Fundamentals
- Five V's of Big Data
- Enterprise Technologies for Big Data Collection and Analysis
- Big Data Storage and Processing
- Big Data Analytics
- Big Data Strategy
- Preserving Privacy with Big Data Applications
- Data Quality (completeness, uniqueness, timeliness, validity, accuracy, consistency)

Real-time Data Gathering and Its Application

- The Meaning of Real-time Data Gathering
- Gathering Data from RFID
- Gathering Geolocations of Mobile Phones and its Use in Urban Planning
- Multimedia Data
- Data Gathering for Risk and Uncertainty Management
- Errors and its Mitigation in Real-time Data Gathering
- New Concepts, Methodologies and Way Forward