



## **UNIX Trainers & Consultants**

**Head Office:** Wema Twins Annex, Plot No. 181,  
Boko-Bagamoyo Road, P.O. Box 33826, Dar es salaam.  
Mob: +255-715-361-880/+255-754-361-880  
Email: [info@unixtrainers.com](mailto:info@unixtrainers.com); [training@unixtrainers.com](mailto:training@unixtrainers.com)  
Website: [www.unixtrainers.com](http://www.unixtrainers.com)

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## **Skills Enhancement on Data Driven Decision Making For an Organization**

### **Course Overview:**

When organizations realize the full value of their data, that means everyone—whether you're a business analyst, sales manager, or human resource specialist—is empowered to make better decisions with data, every day. However, this is not achieved by simply choosing the appropriate analytics technology to identify the next strategic opportunity.

The organization needs to make data-driven decision-making the norm—creating a culture that encourages critical thinking and curiosity. People at every level have conversations that start with data and they develop their data skills through practice and application. The lack of quantitative analytical skills can potentially limit a professional's effectiveness to make quality decisions.

This 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.

### **Course Objectives:**

**At the end of this 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
- Meaningful 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

### **Course Coverage:**

#### **Topic1: 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

## **Topic 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

## **Topic 3: Statistical (Inferential) Decision Making - by 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)

## **Topic 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
- Modelling Approaches
- Regression Models, Time Series Analysis; Autoregressive Models

## **Topic5: Data Mining - A Brief Overview:**

- An Overview of Data Mining
- Definition; 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
- Market Basket Analysis; Customer Relationship Management (CRM)
- Overview of Selected Data Mining Techniques (analysis by NCSS)
- Descriptive Modeling (Segmentation Strategies)
- Predictive Modeling (Classification; Estimation; Prediction Strategies)
- Typical Applications

## **Topic 6: 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)

**Targeted Groups:**

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