Strategic Decision Making Using Data as a Foundation

Duration: 20th October – 12th December 2025

Mode: Blended (Physical + Online) || Schedule: Mon, Wed & Fri (6:00–8:00 PM)

Week	Module	Lessons	Key Outcome
1 (Oct 20–24)	The Power of Data-Driven Strategy	a) Why Data Beats Guesswork b) The Decision-Making Process c) Identifying Key Decision Areas	Understand the role of data in shaping decisions within the Kenyan context.
2. (Oct 27–31)	**Collecting & Preparing Data for Decisions**	**a) Finding Reliable Data Sources (KNBS, CBK, IRA) b) Data Cleaning in Excel (Power Query) c) Data Wrangling in R**	**Confidently gather and prepare data for analysis.**
3. (Nov 3–7)	**Exploring & Understanding Your Data**	**a) Descriptive Statistics & Interpretation b) Visualizing Trends in Excel c) Visualizing with R**	**Summarize and visualize data trends effectively.**

4. (Nov 10–14)	Forecasting & Modeling for Strategic Choices	a) Forecasting with Excel b) Predictive Modeling in R c) Turning Models into Strategy	Apply models to support strategic decisions.
5. (Nov 17–21)	Dashboard Creation & Storytelling	a) Principles of Good Dashboards b) Building Interactive Dashboards in Excel c) Intro to R Shiny	Communicate insights visually and clearly.
6. (Nov 24–28)	Making Decisions from Insights Generated	a) Communicating Insights Persuasively b) Ethics & Governance in Data Use c) Preparing for the Capstone	Present data-driven insights confidently and ethically.
7. (Dec 1–5)	Capstone Project Development	a) Capstone Planning & Dataset Confirmation b) Data Analysis & Report Structuring c) Feedback & Review	Refine analysis and finalize report draft.
8. (Dec 8–12)	Capstone Presentation & Assessment	a) Capstone Presentation (50%) b) Individual Practical Test (30%) c) Reflection Paper (20%)	Demonstrate mastery through applied project and reflection

Course Materials Access

Assignments

Week	Assignment Title	Objective	Task	Resources, Expected Output and Evaluation Focus
1	Mapping Data Opportunities in Decision Making	Identify how organizations in Kenya apply or fail to apply data-driven approaches.	1. Pick one organization (bank, insurance firm, telco, or public agency). 2. Identify 3 key decisions they make regularly. 3. Explain how data could enhance or automate each decision.	CBK Annual Reports, KNBS Economic Survey, IRA Publications. **Expected Output** 2-page report with examples and short data justification. **Evaluation Focus** Depth of insight, clarity in linking data to decisions, relevance to Kenyan context.
2	Cleaning and Combining Kenyan Economic Data	Practice sourcing and cleaning real datasets.	1. Download inflation data (KNBS) and lending rates (CBK). 2. Clean both datasets in Excel (Power Query) and merge them. 3. Export to R and verify using summary() and skimr packages.	Data portals: data.go.ke, cbk.go.ke, knbs.or.ke. **Expected Output** Cleaned Excel file Screenshot or R Markdown of cleaning process **Evaluation Focus** Accuracy in cleaning,

				reproducibility, data quality verification.
3	Visualizing Kenyan Financial Trends	Build skills in descriptive analytics and storytelling.	1. Use the dataset from Week 2. 2. Create at least 4 visuals such as line, bar, scatter and histogram in Excel and R. 3. Summarize findings in 300–400 words.	R packages: ggplot2, plotly, dplyr Working dataset: M-Pesa transaction data from CBK or Safaricom annual reports. **Expected Output** PowerPoint or PDF dashboard Short written summary **Evaluation Focus** Clarity of visualizations, interpretation accuracy, and story coherence.
4	Forecasting Mobile Money Transactions	Apply forecasting and regression analysis to real data.	1. Use historical M-Pesa or insurance claims data (you may simulate if not public). 2. Build a linear regression model in Excel and R to predict 2026 Q1 values. 3. Explain assumptions and model interpretation.	R packages: forecast, lm, ggfortify Excel: Data Analysis ToolPak **Expected Output** Model summary (Excel and R output) Short report (max 2 pages) explaining

				business implications **Evaluation Focus** Correct model formulation, interpretability, and link to strategy.
5.	Building a Decision Dashboard	Building a Decision Dashboard	1. Using the datasets from previous modules, build an Excel dashboard and an optional R Shiny prototype. 2. Include key metrics (KPIs) such as revenue trends, risk ratios or client growth.	Excel features: Slicers, Pivot Charts, Conditional Formatting Optional: R Shiny or Google Data Studio **Expected Output** Excel dashboard file Screenshot with data story summary (150–200 words) **Evaluation Focus** Design clarity, relevance of KPIs, narrative flow.
6.	Insight Presentation and Ethical Analysis	Practice data communication and ethical reasoning.	1. Present one key insight from your previous analysis to a “simulated management board.” 2. Identify possible biases or ethical concerns such as data privacy, misinterpretation, etc.	Articles on data ethics from Data Science Africa Reference: Data Protection Act (Kenya, 2019) **Expected Output**

				5-slide PowerPoint presentation 1-page ethics reflection note **Evaluation Focus** Persuasiveness, awareness of data ethics, professionalism in presentation.
7.	Applied Data-Driven Decision Project	Integrate all skills to solve a Kenyan business and a policy problem.	1. Select a real or simulated dataset related to finance, insurance, health, or policy. 2. Define a clear question e.g., *"What factors drive default among microfinance borrowers?"*. 3. Conduct analysis using Excel and R. 4. Prepare draft report and visuals.	Kenya Open Data Portal Kaggle "Kenya" tagged datasets Your own academic data repository **Expected Output** Draft report (3–5 pages) + analysis scripts **Evaluation Focus** Rigor of analysis, structure of insights, relevance to decision context.
8	Final Capstone Presentation & Reflection	Demonstrate practical mastery and reflective thinking.	1. Present findings in 10–12 minutes using a PowerPoint or R dashboard.	Previous weeks' work Reflection framework (provided by coach) **Expected Output**

			2. Submit individual reflection (1–2 pages) on what you learned and how it connects to your career.	PowerPoint presentation Reflection paper in PDF format. **Evaluation Focus** Clarity of communication, practical application, personal insight.

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Skill Kwa Ground