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Semester:1

Assignment Work- 4th

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Course: Foundation of Data driven decision making **Faculty:** Dr. Satinder

Module 4: Decision strategies and Outcome Evaluation

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Task 1: Choose a business scenario (marketing, operations, or education) and define 3-4 KPIs to measure success.

Sol. Business scenario: Marketing – Social media campaign performance

Key performance indicators (KPIs)

1. Engagment Rate
Measure how actively user interact with the campaign content.
Formula:

$$\text{Engagement Rate} = \frac{\text{Likes + comments + Shares}}{\text{Total Impressions}} \times 100$$

Why it matters: Helps evaluate how appealing and relatable and content is.

2. Click-through Rate (CTR)
Show how many people clicked the campaign link or ad.

$$\text{formula: CTR} = \frac{\text{clicks}}{\text{Total views}} \times 100$$

why it matters: Indicates the effectiveness of messaging and visual elements in driving user action.

3. Conversion Rate
Measures how many users completed a desired action (purchase, signup, download).

$$\text{Formula: Conversion Rate} = \frac{\text{conversions}}{\text{Total clicks}} \times 100$$

why it matters: show the campaign's actual business impact.

Task 2: Develop a data-driven decision plan using available information and justify your choices.

Sol. Data-Driven Decision Plan (step by step)

1. Define the Problem or Goal

Example: Improve customer retention by 10% in the next quarter.

Why this step?

A data-driven decision must begin with clarity. A vague or undefined goal leads to irrelevant analysis and wasted effort.

2. Identify Required Data

Identify what information is needed to solve the problem.

Example Data Types

- Customer demographics (age, location)
- Transaction history.
- Website/app usage behavior
- Customer support tickets.

Why this step?

Without understanding what data is needed, you may collect too much (wasteful) or too little (insufficient to make decisions).

3. Collect Existing Data (internal + External)

Use available information first to avoid unnecessary data collection.

Internal Data Sources

- CRM system
- Sales database
- Website analytics
- Customer service logs

External Data Sources
- Industry benchmarks
- competitor reports
- Market research studies

why this step?
most organizations already have valuable data - you should leverage it before gathering new data.

4. Clean, Organize and Prepare Data

Perform:
- Removing duplicates
- Fixing missing values
- standardizing formats
- Creating a structured dataset

why this step?
Dirty data leads to incorrect insights. clean data ensures accuracy, reliability and consistency of analysis.

5. Analyze the Data

Choose methods depending on the problem:

Examples of Analytical Techniques.
- Descriptive analytics: Mean, median, frequency.
- Diagnostic analytics: Identify why it happened.
- Predictive analytics: Forecast future outcomes.
- Prescriptive analytics: Recommend actions.

Task 3: Suggest methods to track and evaluate performance over time using feedback loops.

Sol. The methods are :-

1. Establish clear metrics (KPIs)

A feedback loop needs something to measure.

Define specific, measurable, and time-bound KPIs.

Examples:

- Marketing: conversion rate, cost per lead
- Operations: order fulfillment time, error rate.
- Education: student engagment, assignment completion rate.

why it helps:

creates a baseline against which changes can be measured.

2. Use continuous Data collection

set up systems that automatically gather relevant data.

Methods:

- Analytics dashboards (Google Analytics, Power BI)
- CRM tools (Hubspot, salesforce).
- Project management activity logs (Jira, Asana)
- Time trackers or productivity apps.

why it helps:

Ensures real-time insight and reduces human error.

3. Implement Regular Review cycles

Evaluate performances at consistent time intervals.

common cycles:

- weekly: Progress tracking, quick issue fixes
- Monthly: KPI review, trend analysis
- Quarterly: strategic adjustments

why it helps:

Turns reflection into a habit and supports better decision-making.

4. Use the PDCA Feedback Loop

classic performance improvement model:

1. Plan – Set goals and KPIs
2. Do – Implement actions
3. Check – Compare results against targets
4. Act – make improvements based on findings

why it helps:

Provides a structured, iterative improvement process.

5. Create mechanism for Direct Feedback

continuous feedback from stakeholders helps refine performance.

Methods:

- Employee feedback surveys
- Customer satisfaction tools (NPS, CSAT)
- Peer reviews or 360° evaluations
- Student feedback forms (for education settings)

why it helps:

Adds qualitative insights that numbers alone cannot provide.

6. Include Automated Alerts & Thresholds

set trigger points for required action.

Example:

- If sales drop by 15% in a week → alert
- If customer wait time exceeds 5 minute → action required.

why it helps:

Helps identify issues early and reduces risk.

Task 4: Prepare a one-page executive summary highlighting your insights and recommendations.

This executive summary presents key insight and recommendations for building a robust, data-driven performance management framework supported by effective KPIs, continuous feedback loops, and strong visual storytelling practices. These elements collectively strengthen organizational decision-making and enable sustained performance improvement.

Key Insights

1. Importance of clear KPIs

well-defined key performance indicators (KPIs) acts as the foundation for measuring progress. KPIs must be:

- Specific and aligned with business goals.
- Quantifiable and consistently measurable
- Time-bound for evaluation
- Actionable, enabling clear interpretation.

2. Power of Data-Driven Decisions

Data-driven decision-making transform raw information into strategic action by:

- Ensuring objectivity and reducing guesswork.
- Enabling predictive insights through trends and historical patterns
- Supporting proactive resource allocation.
- Improving stakeholder confidence through evidence backed conclusions.