Rewards Next Dashboard — Technical Documentation

1. Data Model (ERD)

The data model is a star schema with events transformed as fact table, linked to three dimensions:

• Customers transformed (customer id, demographics)

• Offers source (offer id, type, reward, difficulty, duration, channels)

• Date (calendar table with Year, Month, Quarter)

Additional Event Order table supports funnel ordering.

2. Power Query (ETL) Steps

- • Load CSVs (customers, events, offers, data_dictionary).
- • Parse events.value JSON using Json.Document after replacing single quotes with double.
- • Extract offer_id_extracted and transaction_amount.
- • Convert became_member_on to Date, fix data types.
- • Replace null genders with 'Unknown', handle unrealistic ages.
- • Expand offers.channels if needed into separate rows.
- • Ensure transaction_amount as Decimal Number.

3. DAX Measures

- • Total Sales = SUM(events_transformed[transaction_amount])
- • Offers Sent = CALCULATE(COUNTROWS(events_transformed), events_transformed[event] = "offer received")
- • Offers Viewed = CALCULATE(COUNTROWS(events_transformed), events_transformed[event] = "offer viewed")
- • Offers Completed = CALCULATE(COUNTROWS(events_transformed), events_transformed[event] = "offer completed")
- • Redemption Rate = DIVIDE([Offers Completed], [Offers Sent], 0)
- • Avg Transaction Amount = DIVIDE([Total Sales], CALCULATE(COUNTROWS(events_transformed), events_transformed[event] = "transaction"), 0)
- • Transaction Count = CALCULATE(COUNTROWS(events_transformed), events_transformed[event] = "transaction")
- • CompletedOfferFlag = IF(COUNTROWS(FILTER(RELATEDTABLE(events_transformed), events_transformed[event] = "offer completed")) > 0, "Completed", "Not Completed")
- • Avg Spend - Completed Customers = CALCULATE(AVERAGE(events_transformed[transaction_amount]), events_transformed[event] = "transaction", KEEPFILTERS(customers_transformed[CompletedOfferFlag] = "Completed"))

- • Avg Spend - Not Completed Customers =
  CALCULATE(AVERAGE(events_transformed[transaction_amount]),
  events_transformed[event] = "transaction",
  KEEPFILTERS(customers_transformed[CompletedOfferFlag] = "Not Completed"))

4. Report Pages

- • Page 1: Overview — KPI cards, sales & completions trend line.
- • Page 2: Offer Funnel — Funnel using EventOrder[event] sorted by EventStep.
- • Page 3: Customer Segmentation — Heatmap (AgeBand × IncomeBand), slicers for Gender & CompletedFlag, bar charts by demographics.
- • Page 4: Offer Performance — Bar charts (type, reward, channels), scatter (difficulty vs redemption).
- • Page 5: Transaction Behavior — Line chart (Completed vs Not Completed spend), KPI cards.

5. Optimization Notes

- • Remove unused columns (raw JSON).
- • Disable Auto Date/Time; mark Date table explicitly.
- • Keep single-direction relationships.
- • Use Incremental Refresh if dataset grows.
- • Avoid high-cardinality slicers.

6. Validation Performed

- • Spot check 100 customers — offer completions vs DAX matched Power Query.
- • Verified redemption measures align with manual counts.
- • Checked transaction_amount totals against raw CSV.
- • Confirmed EventOrder sorting logic in Funnel.

7. Deployment Instructions

- • Save PBIX as Rewards Next Customer Engagement.pbix.
- • Publish to Power BI Service workspace.
- • Configure refresh schedule and data gateway (if local files).
- • Share App with marketing team, set permissions.
- • Maintain datasets and extend with new offers when