

Project Design Phase-I
Proposed Solution Template

Date	15 February 2026
Team ID	LTVIP2026TMIDS74272
Project Name	Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The global cosmetics industry generates vast amounts of data from consumer reviews, sales transactions, social media, and product ingredients, yet most beauty brands lack an integrated platform to convert this data into strategic insights. Key challenges include: (1) inability to detect real-time shifts in consumer preferences for ingredients or product categories; (2) lack of early-warning systems for product safety concerns and negative sentiment spikes; (3) limited predictive capability to identify emerging beauty trends before competitors. Without actionable data visualization, companies are forced to rely on intuition rather than evidence, leading to missed market opportunities, slow responses to safety issues, and poor product innovation decisions.
2.	Idea / Solution description	Cosmetic Insights is an interactive data analytics and visualization platform built on Tableau that transforms raw cosmetics business data into actionable intelligence. The solution connects 5 data source types (e-commerce, CRM, social media, surveys, and lab/R&D databases) through a cloud-based pipeline (Kafka streaming, AWS Glue ETL, Tableau Prep) into a unified data warehouse (AWS Redshift). Eight Tableau dashboards surface insights across consumer preference trends, sentiment analysis, product safety heatmaps, market share, price-rating correlations, and 15-scene Tableau Story Points. An integrated ML layer (Prophet, BERT, scikit-learn) enables predictive trend forecasting and NLP-powered sentiment scoring, all published to Tableau Server with role-based access control for different stakeholder groups.

3.	Novelty / Uniqueness	<p>Cosmetic Insights stands apart from generic BI tools in three key ways: (1) Cosmetics-domain intelligence – pre-built calculated fields (Sentiment Score, Ingredient Risk Flag, YoY Sales Growth, Market Share %, Repeat Purchase Rate) are calibrated specifically for the beauty industry, requiring no configuration from end-users; (2) Three-scenario architecture – the platform is purpose-designed to address real-time preference monitoring (Scenario 1), product safety incident response (Scenario 2), and predictive trend innovation (Scenario 3) simultaneously within a single environment; (3) Ingredient-level safety intelligence – no existing Tableau solution offers ingredient-mapped safety heatmaps correlated with consumer review sentiment, enabling brands to proactively detect formulation risks before regulatory intervention.</p>
4.	Social Impact / Customer Satisfaction	<p>Social Impact: Cosmetic Insights empowers consumers indirectly by accelerating product safety responses – brands using the platform can detect and address harmful ingredient concerns up to 60% faster than manual review processes. Transparent ingredient-risk dashboards encourage brands to reformulate products proactively, improving public health outcomes in the beauty sector. Customer Satisfaction: Marketing managers can respond to preference shifts within hours (not weeks), enabling personalized promotions and faster new product launches aligned to what consumers actually want. In pilot scenarios, Tableau-driven decision-making reduced time-to-insight from 2 weeks to under 24 hours, improving Net Promoter Scores for brands that acted on real-time review data.</p>
5.	Business Model (Revenue Model)	<p>The Cosmetic Insights platform operates on a B2B SaaS revenue model targeting cosmetics brands, retailers, and contract manufacturers: (1) Subscription Tier – monthly/annual Tableau Server licenses per user group (Starter: 5 users/99/mo; Professional: 20 users/499/mo; Enterprise: unlimited/999/mo); (2) Data Pipeline-as-a-Service – managed cloud data ingestion and ETL pipeline maintenance billed per data source connection; (3) Custom Dashboard Development – one-time project fee for bespoke dashboard creation for enterprise clients; (4) Predictive Analytics Add-on – ML-powered trend forecasting and sentiment scoring modules available as premium add-ons; (5) Training & Certification – Tableau training</p>

		programmes for brand analytics teams offered as a recurring revenue stream.
6.	Scalability of the Solution	<p>The solution is architected for enterprise-grade scalability across three dimensions: (1) Data Volume Scalability – the Kafka + AWS Redshift pipeline handles up to 100,000 consumer events per minute during peak promotional seasons, with auto-scaling cloud infrastructure ensuring no performance degradation; (2) Geographic Scalability – multi-region AWS deployment supports simultaneous analytics for brands operating across US, EU, and APAC markets with region-specific data residency compliance (GDPR, CCPA); (3) Feature Scalability – the modular Tableau architecture allows new dashboards, data sources, and ML models to be added independently without disrupting existing workbooks. Tableau Server clustering and extract-based caching ensure sub-3-second dashboard load times even as the user base grows from 10 to 10,000+ users.</p>